Pacific
Salmon
Commission

2006/2007
Twenty Second Annual
Report

Pacific Salmon Commission

Established by Treaty between Canada and
the United States
March 18, 1985
for the
conservation, management and
optimum production of
Pacific salmon

Twenty Second Annual Report 2006/2007

Vancouver, B.C.
Canada

February 2009

PACIFIC SALMON COMMISSION

ESTABLISHED BY TREATY BETWEEN CANADA
AND THE UNITED STATES OF AMERICA
MARCH 18, 1985

600 - 1155 ROBSON STREET
VANCOUVER, B.C. V6E 1B5
TELEPHONE: (604) 684-8081
FAX: (604) 666-8707

Our File:

Your File:

Letter of Transmittal

In compliance with Article II, Paragraph 14 of the Treaty between the Government of Canada and the Government of the United States of America concerning Pacific salmon, it is my pleasure as Chair of the Pacific Salmon Commission to present my compliments to the Parties and to transmit herewith the Twenty Second Annual Report of the Commission.

This report summarizes the activities of the Commission for the fiscal year April 1, 2006 to March 31, 2007. It includes reports on the results of the 2006 fishing season presented by the Parties and on meetings of the Commission and the Standing Committee on Finance and Administration. Also included are the annual reports of the Northern and Southern Fund Committees. Executive summaries of documents prepared by Pacific Salmon Commission staff and the joint technical committees during the period covered by this report are also presented.

A summary of the agreement is available on the PSC website: www.psc.org.

The Auditors' report on financial activities of the Commission during the fiscal year April 1, 2006 to March 31, 2007, approved by the Commission, is also included in this report.

Yours Truly,

Paul Sp

Mr. Paul Sprout
Chair

PACIFIC SALMON COMMISSION

OFFICERS for 2006/2007

Chair	Mr. Paul Sprout
Vice-Chair	Mr. Ron Allen

COMMISSIONERS

Canada	**United States**
Mr. Ron Fowler	Mr. David Bedford
Mr. Gerry Kristianson	Dr. Jeff Koenings
Mr. Arnie Narcisse	Mr. Larry Rutter
Mr. Garnet Jones	Mr. James E. Bacon
Mr. Russ Jones	Mr. David Balton
Mr. Paul Kariya	Mr. Olney Patt Jr.
Mr. Paul Macgillivray	Mr. Rollie Rousseau

SECRETARIAT STAFF

Executive Secretary	Mr. Don Kowal
Administrative Officer	Mr. Ken Medlock
Chief Biologist	Mr. Mike Lapointe

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INTRODUCTION

Interception of Pacific salmon bound for rivers of one country in fisheries of the other has been the subject of discussion between the Governments of Canada and the United States of America since the early part of this century. Intercepting fisheries were identified through research conducted by the two countries on species and stocks originating from Alaska, British Columbia, Washington, Oregon and Idaho. The results of this research identified that Alaskan fishers were catching salmon bound for British Columbia, Idaho, Oregon and Washington. Canadian fishers off the West Coast of Vancouver Island were capturing salmon bound for rivers of Washington and Oregon. Fishers in northern British Columbia were intercepting salmon returning to Alaska, Washington, Oregon and Idaho, and United States fishers were catching Fraser River salmon as they traveled through the Strait of Juan de Fuca and the San Juan Islands towards the Fraser River.

Management of stocks subject to interception became a matter of common concern to both Canada and the United States. A mechanism to enable the countries to reap the benefits of their respective management and enhancement efforts was required. That mechanism is now provided through the Pacific Salmon Treaty, which entered into force upon the exchange of instruments of ratification by the President of the United States of America and the Prime Minister of Canada on March 18, 1985.

The Pacific Salmon Commission, guided by principles and provisions of the Treaty, establishes general fishery management regimes for international conservation and harvest sharing of intermingling salmon stocks. Each country retains jurisdictional management authority but must manage its fisheries in a manner consistent with the provisions of the Treaty. Implementation of the principles of the Treaty should enable the United States and Canada, through better conservation and enhancement, to prevent overfishing, increase production of salmon, and ensure that each country receives benefits equivalent to its own production. The Commission also serves as a forum for consultation between the Parties on their salmonid enhancement operations and research programs.

The organizational structure of the Commission is currently focused on four geographically oriented panels. The terms of new Treaty arrangements signed by the Parties in June, 1999 provided for the creation of a new Transboundary Panel. The Transboundary Panel's stocks of concern originate from the Alsek, Stikine and Taku River systems. The Northern Panel's stocks of concern are those which originate in rivers situated between Cape Suckling in Alaska and Cape Caution in British Columbia. The Southern Panel's stocks of concern are those which originate in rivers located south of Cape Caution, other than Fraser River sockeye and pink salmon. The Fraser River Panel has special regulatory responsibilities for stocks of sockeye and pink salmon originating from the Fraser River.

The functions of panels are to review annual post-season reports, annual pre-season fishing plans and ongoing and planned salmonid enhancement programs of each country, and to provide recommendations to the Commission for development of annual fishery regimes in accordance with the objectives of the Treaty. These plans, once adopted by the Commission and the governments, are implemented by the management agencies in each country.

The Fraser River Panel, in addition, has been accorded special responsibility for in-season regulation of Fraser River sockeye and pink fisheries of Canada and the United States in southern British Columbia and northern Puget Sound, in an area designated as Fraser River Panel Area Waters. Scientific and technical work is conducted for the Panel by the Fishery Management Division of the Commission's Secretariat staff.

Negotiations designed to lead to agreed fishery regimes were conducted at the government-to-government level commencing in the spring of 1998. A comprehensive agreement was reached by the Parties on June 30, 1999.

As a result of the agreement, long-term fishing arrangements are in place for ten years, except for Fraser River sockeye and pink salmon, which is a 12-year arrangement.

With fishery arrangements in place, the meeting agendas for the Commission have concentrated on implementation of the elements of the new arrangements that will improve fisheries management and aid the countries efforts to recover weakened stocks. These provisions include establishment of two bilaterally-managed restoration and enhancement funds, provisions to enhance bilateral cooperation, improvements to the scientific basis for salmon management and application of institutional changes to the Pacific Salmon Commission.

On December 4, 2002, the Parties signed an international agreement detailing a cooperative approach to conservation of salmon stocks originating in the Yukon River in Canada. The agreement will be included as an Annex of the Pacific Salmon Treaty. As such, the Yukon River Salmon Agreement is separate from the Pacific Salmon Treaty because it sets out a distinct regime for Yukon River salmon, while adhering to the broad science-based management principles of the Pacific Salmon Treaty.

The Commission meets at least once annually and conducts its business between meetings through its permanent Secretariat located in Vancouver, British Columbia. In the period April 1, 2006 to March 31, 2007, the Commission met on three occasions:

1. Commission Executive Session
   October 17-19, 2006 – Kelowna, B.C

2. Post-Season Meeting of the Commission and Panels
   January 8-12, 2007 – Vancouver, B.C.

3. Twenty-Second Annual Meeting of the Commission
   February 12-16, 2007 – Portland, Oregon

This, the Twenty-Second Annual Report of the Pacific Salmon Commission, provides a synopsis of the activities of the Commission and its subsidiary bodies during its Twenty-second fiscal year of operation, April 1, 2006 to March 31, 2007.

Activities of the Commission

PART I
ACTIVITIES OF THE COMMISSION

A. EXECUTIVE SESSION OF THE PACIFIC SALMON COMMISSION
October 17-19, 2006, Kelowna, B.C.

The Commission met bilaterally three times during this meeting.

The Commission discussed the proposal for the establishment of a Habitat and Restoration Technical Committee, adopted at the February 2006 session. The Commission adopted a set of instructions for an ad hoc habitat scoping committee, which would be directed to compile a summary report of the activities carried out in both Parties' jurisdictions relative to non-fishing factors since the 1999 Agreement was signed.

Dr. Rick McNicol, Mr. John Carlile, and Mr. Del Simmons, appeared before the Commission. They were members of the Chinook Technical Committee workgroup formed to report on concerns about the conduct of the WCVI fishery. Mr. Simmons gave a presentation about the findings of the workgroup.

The Commission discussed and adopted a proposal for renegotiating the fishery regimes in Annex Four of the Pacific Salmon Treaty that would expire in 2008. It was hoped that the Chapters would be renegotiated within the Commission process.

The annual work plans of the Commission's Panels and Committees were presented and discussed. The Commission adopted instructions to the Panels and Committees.

Canada provided information to the U.S. about a case recently ruled upon in the Canadian courts (the Laroque case) that could affect test fisheries in Canadian waters, including those carried out by the PSC. Fisheries and Oceans Canada was exploring a number of options about how to proceed. Canada would keep the U.S. informed about its progress.

B. MEETING OF THE COMMISSION AND PANELS
January 8-12, 2007, Vancouver, B.C.

Three bilateral sittings were held during this meeting.

The Parties tabled their Post Season Fishing reports.

The Commission received a status report on the activities of the Coded Wire Tag (CWT) workgroup, which was charged with determining how the first four recommendations in the Report of the Expert Panel on the CWT program could be implemented. Dr. Marianna Alexandersdottir, workgroup Chair, presented the report.

Dr. Rick McNicol and Mr. John Carlile, members of the Chinook Technical Committee, reported on the development of a stratified proportional fishery index (SPFI) for the WCVI AABM fisheries.

Mr. Steve Pennoyer and Dr. Laura Richards of the Committee on Scientific Cooperation (CSC) presented a memorandum to the Joint Endowment Fund Committee and the Pacific Salmon Commission regarding a proposed genetic stock identification (GSI) workshop on ocean salmon management techniques. The CSC received feedback from the Commission. The Committee would present a revised proposal to the Commission in February.

Commissioner Macgillivray reported on the Canadian Federal Court of Appeal decision (the Larocque decision) that called into question the authority of the Minister of Fisheries and Oceans to use allocations of fish to fund fisheries management activities. The Commission discussed the impacts that the decision could have on the Commission's test fishing program.

The Commission discussed the renegotiation of the Chapters in Annex Four that would expire in 2008.

The Northern Panel reported that there were no provisions in the Northern Boundary Chapter that required amendment. The Southern Panel outlined issues that required discussion in the Chum Chapter but did not have recommendations for substantive changes to the Coho Chapter. The Transboundary Panel presented a list of provisions in the Transboundary Chapter that would require amendment. It received authorization to hold further bilateral meetings to discuss the provisions. The Parties exchanged and discussed annotated lists identifying the provisions in the Chinook Chapter that could be in need of amendment. The Commission agreed to further discuss the renegotiation of the Chapter at the February session.

C. PACIFIC SALMON COMMISSION ANNUAL MEETING
February 12-16, 2007, Portland, Oregon

Three sittings were held during the meeting.

Dr. Laura Richards and Mr. Steve Pennoyer, Chairs of the Committee on Scientific Cooperation, presented the Committee's annual report and a progress report on the plans to hold a workshop on genetic stock identification.

Commissioner Macgillivray, Chair of the Finance and Administration Committee, presented the Committee's report. The report included a proposed budget for the Commission Secretariat. However, the budget did not address how the Commission's 2007 test fishing program would be funded. The Committee would meet by conference call in the upcoming months in order to determine how to fund the program. The Commission adopted the report.

The Commission heard presentations about salmon recovery efforts taking place in both the United States and Canada. Mr. Ron Simms, Washington's King County Executive, spoke about salmon recovery efforts in King County. Ms. Sara LaBorde of Washington Fish and Wildlife gave a presentation about salmon recovery in the Pacific Northwest with a focus on Washington State. Dr. Ken Curran spoke about the scientific principles of salmon recovery planning. Dr. Brian Riddell of Fisheries and Oceans Canada spoke about the Department's Wild Salmon Policy. Mr. Howie Wright, a biologist with an Okanagan First Nations community gave a presentation about salmon restoration efforts in the Okanagan Basin.

Mr. Angus Mackay, Endowment Fund Committee Coordinator, presented the annual report of the Southern Boundary Restoration and Enhancement Fund and the Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund for 2006.

The Parties exchanged papers on how to proceed with the renegotiation of the Chinook Chapter. They determined that more time was needed to review the papers before a detailed discussion could be held. It was agreed that further meetings of a chinook negotiating team would be scheduled.

The Commission received a report about progress made in the renegotiation of the Coho and Chum Chapters from the Southern Panel. The Transboundary Panel reported on the status of Transboundary Chapter renegotiations.

A discussion was held about the need for the Commission to develop a communications policy. It was agreed that the issue should be put on the agenda of the October 2007 Executive Session.

Activities of the Standing Committees

PART II
ACTIVITIES OF THE STANDING COMMITTEES

A. MEETINGS OF THE STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

1. Committee Activities

The Committee met on December 14, 2006 and January 10, 2007 in Vancouver BC, held a conference call on February 7, 2007 and held an additional meeting on February 13, 2007 in Portland, Oregon to consider a range of financial and administrative issues. The Committee's deliberations focused on the budget forecast for FY 2007/2008 and beyond.

The Committee approved the Commission budget at the contribution level of C$1,587,969 per party (Appendix D) with expenditures of C$3,600,234. This represents a reduced contribution per party over last year of $158,814. The Committee recommended acceptance of this budget which excludes any test fishing program costs, which traditionally have been reported separately by staff. This recommendation is being made with the Committee having spent considerable time discussing the "Larocque Decision", a court case in Canada which is having an impact on how test fishing and sampling costs are funded. Accordingly, further discussions are required to address PSC related budget implications.

With regards to the test fishing program the Committee has stated the need to maintain the integrity of the program. As well, it has been agreed that the cost of the test fishing program will not be supported at the expense of other PSC Secretariat programs. Canada has reported that amendments to the Fisheries Act have been proposed which would permit the use of fish to offset the cost of test fishing. However, this solution is contingent upon the Canadian Parliament approving such an amendment and the timeline for this change is unclear. The Committee agreed to continue working on this issue by: continuing to review the costs of the test fishing program; reflecting on the anticipated Minister of Fisheries response to US State Department correspondence; continuing review of interpretations to court decisions; and by reviewing potential direct funding options by the Parties. The F&A Committee agreed to meet as needed to finalize decisions related to the test fishery.

As part of the regular budget review the Committee reviewed the status of the revolving test-fishing fund and approved the staff recommended transfer to the fund of a forecast surplus of C$37,148. This will bring the fund to a level of C$478,735.

The Committee also reviewed staff projections of expenditures for the balance of the current fiscal year. The staff reported a forecast carry-over of C$402,297 to next year. It was therefore recommended that the carryover from 2006/2007 be carried to fiscal 2007/2008 to offset costs of programs initiated in this fiscal year.

The Executive Secretary reviewed the projected budgets for 2008/2009, 2009/2010 and 2010/2011.

The Committee reviewed the PSC Meeting Schedule and approved Canada's recommendation to host the October 21-23, 2008 Executive Session in Victoria, B.C.

Other administrative matters that were considered by the Committee included the need for the Commission to secure a permanent Hydro acoustic site at Mission. This may require the Commission to purchase the small parcel of land currently being leased where the Hydro acoustic program is currently conducted.

The Executive Secretary also reported on work in progress of a succession plan for secretariat staff and the needs for training.

Finally, Staff recommended a review of the PSC bylaws, in particular the financial and staff rules in order to bring them up to date. This is to be done prior to October 2007 so that it may be considered at the next Commission Executive Session.

2. Secretariat Staffing Activities

A list of Secretariat staff employees as of March 31, 2007 is presented in Appendix E.

An updated membership list for panels, standing committees, joint technical committees and as hoc working groups as of March 21, 2007 is presented in Appendix F.

B. MEETINGS OF THE STANDING COMMITTEE ON SCIENTIFIC COOPERATION

The primary mandate of the Committee on Scientific Cooperation (CSC) is to assist in setting the scientific agenda for the Commission, including identifying emerging issues and subjects for research, and monitoring their progress. During 2006, the CSC was engaged in two main issues.

The first was involvement in studies of late-run Fraser River sockeye. A substantial body of scientific work had accumulated over the preceding five years regarding the high mortality rate and apparent behaviour change of late-run Fraser River sockeye. The CSC recommended that before proceeding further, a workshop should be held to synthesize the studies to date and to discuss next steps. The final results of various studies would not be available until 2008. Therefore, the Committee planned to submit a proposal to the Southern Endowment Fund Committee for funding for a spring 2008 workshop.

The second issue of concern for the CSC was the need for the Commission to sponsor a GSI (genetic stock identification) workshop. To that end, the Committee had submitted a proposal for funding to the Northern and Southern Endowment Fund Committees. The main thrust of the proposal was that the workshop should take a broad look at how modern GSI technologies might be used to improve ocean salmon management, including an assessment of the degree that the technology could shore up recognized deficiencies in the Coded Wire Tag (CWT) system as identified in the recent CWT Expert Panel report.

A workshop steering committee was formed and the initial proposal was revised based on the input of steering committee members. While CSC members did not plan to participate as steering committee members, the Committee would stay involved in a monitoring capacity and would comment to the Commission on the workshop's final product.

C. MEETINGS OF THE NORTHERN AND SOUTHERN FUND COMMITTEES

The Northern and Southern Fund Committees have agreed that given the congruent nature of their agendas and their decision to combine the funds into a single master account for investment management purposes, and the efficiencies involved with respect to interaction with the fund managers, it was appropriate to meet together as a Joint Fund Committee at least for the time being. Thus the Joint Fund Committee met in person on two occasions: April 20th and November 29th and 30th, 2006.

The Joint Committee's first meeting in 2006 was held on April 20th, 2006 at the PSC offices in Vancouver. Mr. John Myrah and Mr. Chris Kautzky of Hewitt and Associates presented their Fund performance review for the first quarter of 2006. Mr. John Myrah reviewed the final edits to the updated Statement of Investment Policies and Procedures and a motion approving the document was passed. The Committee also discussed issues of joint interest including genetic stock identification techniques; coded-wire tagging developments and coast-wide project funding opportunities.

The other Joint Fund Committee meeting of the year was an in person meeting held at the PSC offices in Vancouver, BC on November 29th and 30th, 2006. As usual the November meeting was marked by the annual Fund investment manager performance reports and interviews. The Committee was generally satisfied with the performance and reports from Barclays Global Investors; from Brandes Investment Partners and from LSV Asset Management. Hewitt and Associates staff provided their third quarter report and also briefly discussed options with the Committee on alternative investment opportunities. The Joint Committee also reviewed a joint application for funds received from the PSC's Committee on Scientific Cooperation for 2007. In addition, an anticipated application from the Chinook Technical Committee for funding support ahead of the renegotiation of the Chinook chapter of Annex IV of the Pacific Salmon Treaty was discussed.

In 2006 the Southern Fund invested $3.9M US in 62 projects, the single largest of which was a $1.3 M investment in a collaborative suite of research studies on the early in-river migration of late-run Fraser River sockeye. The Southern Fund continued to sponsor Georgia Basin and Fraser Valley coho habitat restoration projects in the Lower Mainland of BC and in the BC. West Coast of Vancouver Island and Puget Sound chinook were also the subject of on-going investments in habitat restoration. The Cowichan River on the east coast of Vancouver island was the site of a quarter million dollar investment into a major slide remediation project A number of tribal proponents in Washington and Oregon states were awarded grants in support of projects concerning Columbia River chinook. Enhancement projects concerned incubation and rearing facilities for chinook stocks on the Campbell, Cowichan and Nanaimo rivers along the east coast of Vancouver Island.

The Southern Fund Committee also embarked on a Strategic Planning process. A key element of the plan is the establishment of a number of Strategic Goals or intended outcomes to be realized over the term of the plan.

The Northern Fund Committee awarded grants in the amount of just over $3M US in 2006 with two thirds of that money being directed towards Improved Information projects. The Fund continued to support population estimates, mark recapture programs and radio telemetry studies on the Alsek, Stikine and Nass rivers. Grants were again made for further northern sockeye and chinook genetic stock ID studies and more monies were put towards expanding the baselines and upgrading the labs where much of this work takes place. Most of the habitat work focused on the Skeena and its tributaries. Sockeye spawning and rearing habitat in Lakelse and Kitwanga lakes were again the subject of on-going investments into flow augmentation, gravel improvements and habitat assessment work. In the enhancement category chum and sockeye are the main species of interest. Chum enhancement opportunities were investigated in Area 3 by Nisga'a fisheries staff and on Porcher Island off the mouth of the Skeena by a local community enhancement group. Larger in scale were the sockeye enhancement projects including Trapper Lake now in its third year, the Tuya harvest structure also in its third year of funding and an investigation into the potential of hanging lakes for sockeye production in the Hartley Bay region of northern BC.

A list of all 2006/07 Northern and Southern Fund projects can be found in Appendices A and B.

For the U.S., Mr. Jim Bacon was appointed to the Northern Fund Committee, replacing Mr. Jev Shelton.

Mr. Victor Keong was hired in the position of Program Assistant at the PSC Secretariat.

Activities of the Panels

PART III
ACTIVITIES OF THE PANELS

A. FRASER RIVER PANEL

The Fraser River Panel completed the 2006 fishery management plan for Fraser River sockeye salmon in Panel Area waters on June 22, 2006. The Panel carried out its in-season fishery management responsibilities as per Annex IV, Chapter 4. Commission staff conducted its regular in-season assessment programs and reported results to the Panel.

The Panel met in bilateral session during the January and February 2007 meetings of the Commission to review the results of the 2006 fishing season, to receive reports from Canada on spawning escapements and to discuss issues of concern for the 2007 fishing season. Commission staff reviewed the concerns regarding the likely continued early upstream migration behavior of Late-run sockeye and identified specific areas of fishery impacts.

B. NORTHERN PANEL

The bilateral Northern Panel met at the PSC Post Season meeting in Vancouver, British Columbia in January 2007. Fishery managers of both parties presented information on 2006 treaty-related fisheries and stock status in the Northern Boundary area.

The Panel reviewed the provisions of Annex IV, Chapter 2, pertaining to northern boundary sockeye and pink salmon which expire at the end of the 2008 season. The Panel did not find any provisions that needed amendment, and is in agreement that the present language can be used for a renewed Chapter 2.

The Panel discussed northern boundary coho provisions, which appear in Chapter 5, sec. 1, 2, and 12, and Chapter 7, Attachment B. The present language is acceptable to both parties, although there was a desire to conduct further technical work on coho in the northern boundary area.

The Panel reviewed and discussed the Northern Fund applications that were pending consideration by the Northern Fund Committee, and reviewed the priority list for solicitation of projects for the 2008 funding cycle.

There were no bilateral meetings during the Annual Meeting in February, in Portland, Ore.

Subsequent to the January meeting, the final 2005 sockeye run reconstruction report from the Northern Boundary Technical Committee (NBTC) was reviewed and approved by both parties.

C. SOUTHERN PANEL

The Southern Panel met in bilateral session during the January and February 2007 meetings of the Commission. The Panel's agenda for these sessions was defined by the 2006-2007 Southern Panel work plan:

Post-Season Review: The Panel conducted a detailed review of the 2006 coho, chinook and chum returns, fishery performance, special conservation actions and escapement levels, working with members of the Coho and Chum Technical Committees.

Chum: The Panel reviewed the results 2006 chum fishery as it relates the new Treaty language developed in February 2006.
As part of the treaty renegotiations process the Panel reviewed the existing treaty language in Chapter 6 (Southern British Columbia and Washington State Chum). Four issues were identified as needing resolution for an effective implementation of the current Chapter 6 agreement for managing Southern chum salmon fisheries:

1) The existing level of Canadian chum abundance used as a status threshold is currently a "provisional" value. Canada is expecting to provide a recommendation and technical basis for the new threshold value for review and approval by the Panel.
2) With respect to U.S. fisheries in the San Juan Islands and Point Roberts areas (7/7A), Canada requested a greater specification of the adjustment that would be made if critical or low stock status is determined in-season.
3) It was identified that overage and underage provisions described in paragraph 11 would require extensive discussion to reach an agreement.
4) In addition to minor editorial modifications, the Panel identified a need to review Technical Committee responsibilities and data collection obligations for utility and effectiveness.

The Panel started discussions regarding these issues at the February PSC meeting but came to no resolutions at that time.

Chinook: As part of the post season review the Panel continued to discuss the WCVI troll fishery on southern Chinook stocks, with a view toward improving US pre-season fishery planning effectiveness

Coho: Once again this year the Panel had a goal of putting more emphasis on the issues surrounding the implementation of the Southern Coho Management Plan. During the post-season and annual Commission meetings, the Panel discussed status of work defined by the Coho Technical Committee's Work Plan, focusing on priority obligations for successful implementation of the Southern Coho Management Plan. Presentations by the Coho TC informed the Southern Panel of the status of work plan tasks, including further work to upgrade the Coho FRAM, management unit definitions and related work being conducted as projects supported by the Southern Endowment Fund.

The Panel also reviewed the existing treaty language in Chapter 6 (Coho Salmon) for the purposes of starting the treaty renegotiations process. The Panel identified that there were no significant changes required in the Southern Coho Management Plan. The Panel did however make recommendations for editorial modifications to the Plan that would be required for clarification, eliminating of duplication and updating commitments with in the 2002 Plan.
The Panel started this process in the February, 2007 PSC meeting and continued the work during a Coho Working Group meeting in March of 2007.

Southern Endowment Fund:
The Panel reviewed the 2006 advice provided to the Southern Endowment Fund Committee regarding priority activities and stocks that affect the mandate of the Southern Panel. The Panel also received a presentation by the fund committee on a proposed strategic plan for the Southern Endowment Fund and invited comment to this proposal.

Steelhead

In order to better understand the health of steelhead stocks in the Fraser River and the Puget Sound areas the Panel planed to share information regarding the stock strength, run timing and fishery monitoring programs. However due to a full agenda and a commitment to starting the treaty renegotiations process this activity was not undertaken.

D. TRANSBOUNDARY PANEL

The Transboundary Panel met extensively in bilateral session during the January and February 2007 meetings of the Commission. During January bilateral sessions, the Panel received several reports by staff of the Alaska Department of Fish and Game and the Canadian Department of Fisheries and Oceans concerning fisheries, stock assessments and joint enhancement activities that took place in both countries in 2006. The Panel also attended a special presentation hosted by DFO's Oceans, Habitat and Enhancement Branch concerning mining activities in the Taku and Stikine drainages.

During the January meeting, in addition to carrying out most of the work plan, the Panel exchanged views on which provisions of the current Transboundary chapter, i.e. Chapter 1 of Annex IV, may be in need of revision. In general, the United States' view was that the Chapter needed editorial and clarification revisions while, in general, the Canadian view was that there were some significant provisions of the current annex that require revision. The January report made to the Commissioners summarized that there were two substantive, three moderate and two easier issues to resolve. In the opinion of the Panel, additional extraordinary meetings would be required and that technical support will be needed during such meetings. The Commissioners instructed the Panel to "back-load" the upcoming February meeting of the Commission and thereby initiate an exchange of views on the identified issues. The Commissioners further assigned the Panel to prepare and exchange two documents. The United States Section was tasked with providing a chronology of the harvest sharing aspects of the various Transboundary Chapters since the United States and Canada had first reached agreement through the Pacific Salmon Treaty. The Canadian Section was tasked with providing further clarification of Canada's views regarding the issues associated with Annex 4, Chapter 1.

The February meeting accomplished two major objectives. Work assignments left over from the January session occupied much of the bilateral agenda during the early portion of the week. Discussions mostly centered on sockeye enhancement activities in the Taku and Stikine Rivers. The Panel met through Saturday afternoon and during the latter portion of the week, most of time was spent on an exchange of positions dealing with potential revision of the Transboundary Chapter. Papers exchanged included: (a) Canadian proposal: Tuya fry out-plants in 2008 given current harvest problems (passed to the United States on February 13, 2007); (b) U.S. response to Canadian proposal for reduced fry plants to the Stikine River in 2008 (passed to Canada on February 14, 2007); (c) Canadian power point presentation entitled: "Review Process for Transboundary Enhancement" (presented to U.S. on February 15, 2007); (d) U.S. proposal for Taku River enhancement (passed to Canada on February 16, 2007); (e) Canadian proposal for joint enhancement program: Tuya River (passed to the United States on February 17, 2007); and (f) Canadian proposal: Taku sockeye harvest shares and enhancement (passed to the United States on February 17, 2007). While none of the issues were resolved by the Panel during the February meeting, the extended bilateral sessions provided a much clearer view of the positions of the two Parties that should prove helpful in eventual resolution of the various issues identified during the January meeting.

Review of 2006 Fisheries and Treaty-Related Performance

PART IV
REVIEW OF 2006 FISHERIES AND TREATY-RELATED PERFORMANCE

The following review has been drawn from a number of reports prepared by Commission staff, joint technical committees, and domestic agencies for presentation to the Commission. Source documents are referenced for each part of this review. All figures are preliminary and will be updated in future reports as more complete tabulations become available.

A. FRASER RIVER SOCKEYE SALMON

Pre-season Planning

1. For Fraser River sockeye salmon, pre-season expectations were for a median run size of 17,357,000 fish, spawning escapement target of 6,992,000 spawners and Johnstone Strait diversion rate of 67%.

2. For Late-run sockeye, the Panel assumed a continuation of the early upstream migration behaviour and associated high mortality that has occurred since 1996. The Panel adopted a flexible approach to Late-run management using the combination of Canada's escapement plan and a management adjustment based on pre-season and in-season estimates of upstream timing. Based on pre-season expectations of abundance, the Late-run spawning escapement target (excluding Birkenhead) was 3,300,000 fish. Using data from the 2006-2007 cycle line the upstream timing was expected to be September 9, which generated a predicted difference between estimates of 31% and a management adjustment of 1,485,000 fish. This resulted in a pre-season exploitation rate limit of 42%. The available exploitation rate changed as escapement targets and management adjustments were updated during the in-season management period. For Canadian fisheries, the exploitation rate on Cultus sockeye was constrained further to 30%. Because of the large expected abundance of Late-run sockeye, a large scale marine tagging study was conducted along with other research programs to help quantify the consequences of and determine the cause(s) of early river-entry behaviour.

3. For the remaining management groups, pre-season spawning escapement goals were 82,000 Early Stuart, 521,000 Early Summer, 2,863,000 Summer and 225,000 Birkenhead sockeye. In addition, management adjustments of 264,000 Early Summer and 143,000 Summer-run sockeye were adopted based on historic average differences between estimates.

4. Projected TACs available for international sharing based on the median abundance forecasts were 7,953,000 sockeye with a United States' shares of 16.5%, or 1,312,000. There were no paybacks owed from previous years.

5. Pre-season modeling showed that it was unlikely that the available Summer-run TAC would be harvested due to mixed stock fishery constraints associated with escapement targets for Early Summer and Late-run stocks.

6. The Panel adopted the management plan and fishery regime before the fishing season In-season Management Considerations.

7. All management groups arrived later than expected(4-8 days) which delayed the start-up of fisheries in both countries. Summer run sockeye returned substantially below forecast, which further delayed larger impact fisheries in marine waters until the more abundant Late-run stocks arrived. Record low Fraser River flows were experienced throughout the summer and all stocks experienced warmer than average water temperatures during their upstream migration. The temperatures were warmest relative to average conditions for Early Stuart sockeye, but temperatures were near average for the remaining stock groups resulting in very little change to management adjustments relative to pre-season expectations.

8. Final in-season estimates of total Late-run sockeye abundance decreased to about half of the pre-season values when the daily abundances projected from marine test fisheries were not observed by the Mission hydroacoustic program. A subsequent post-season review determined that Mission estimates were substantially biased low. Although the review did not draw firm conclusions as to the causes for this bias, the most plausible explanation was changes in fish behavior and potential boat avoidance related to the unprecedented low river flows. The revision to in-season estimates of Late-run abundance occurred after all fisheries were complete, giving the impression that Late-run (and Cultus) exploitation rate targets had been greatly exceeded. However, post-season estimates of Late-run abundance were much higher and near the pre-season forecast levels, resulting in exploitation rates that were only slightly larger than target levels.

Run Size, Catch and Escapement

9. The total return of adult Fraser sockeye was 12,947,000 fish, 25% lower than the median pre-season forecast. By timing group, adult returns totalled 56,000 Early Stuart, 1,817,000 Early Summer, 2,518,000 Summer, 634,000 Birkenhead and 7,922,000 Late-run sockeye. Among Summer-run stocks, Chilko sockeye dominated the returns, followed by Quesnel and then Late Stuart /Stellako sockeye. The Summer-run return was only 35% of the median forecast, primarily due to the poor return of Quesnel sockeye , 722,000 relative to its median forecast of 4,613,000 fish. The poor return of Quesnel sockeye was likely related to two successive record high escapement abundances in the 2001 and 2002 brood years that depressed zooplankton food supplies in Quesnel lake and resulted in extremely small smolts migrating to sea in 2004. The largest Late-run return was for Late Shuswapsockeye, followed by Birkenhead, Weaver/Cultus and Harrison sockeye.

10. Catches of Fraser River sockeye salmon in all fisheries totalled 5,407,000 fish, including 4,572,000 fish caught by Canada, 701,000 fish by the United States and 135,000 fish by test fisheries. The Canadian catch included 3,247,,000 fish in commercial, 1,146,000 fish in First Nations', 172,000 fish in recreational and 7,000 fish in ESSR (excess salmon to spawning requirements) fisheries. In Washington, Treaty Indian fishers caught 485,000 fish and Non-Indian fishers caught 216,000 fish, while 20,000 Fraser sockeye were harvested in Alaska. Commercial fishery catches in both countries summed to 3,948,000 fish.

11. DFO's near-final estimates of spawning escapements to streams in the Fraser River watershed totaled 4,654,000 adult sockeye. The total escapement was 54% lower than the brood year (2002) escapement of 10,201,000 adults. Compared to the brood year, spawning escapements were 44% higher for Early Stuart, 14% lower for Early Summer, 79% lower for Summer, 32% higher for Birkenhead and 45% lower for Late-run stocks. Neither Quesnel or Birkenhead sockeye were enumerated in 2002, so the escapement estimates for the Summer and Birkenhead runs above included

estimates for Quesnel and Birkenhead stocks that were projected from Mission escapements. The large Late-run escapement was due to a large escapement to Late Shuswap spawning areas (2,898,000), that was about 25% greater than the average escapement for the dominant line cycle since 1948. The spawning success of female sockeye in the Fraser watershed averaged 84%.

12. The annual diversion rate through Johnstone Strait was 65% for Fraser sockeye.

Achievement of Objectives

13. In order of descending priority, the goals of the Panel are to achieve the targets for spawning escapement, international sharing of the TAC, and domestic catch allocation. In 2006, an additional objective was to obtain a Late-run exploitation rate below 42%.

14. In-season management is based on targets for gross escapement (spawning escapement targets plus management adjustments and allocations for First Nation and recreational catches in the Fraser River). In-season estimates of gross escapement (Mission escapement + in-river catches below Mission) were very close to the target for Early Stuart, and substantially below the targets for Early Summer (149,000 fish under), Summer (1,202,000 fish under), Birkenhead (41,000 fish under) and Late-run sockeye (1,660,000 fish under). These results are mainly due to the negative bias in in-season Mission escapement estimates described above.

15. Upriver estimates of spawning escapement were below target for the early and summer runs: Early Stuart - 19,000 fish under, Early Summer - 335,000 fish under and Summer – 1,132,000 fish under. The target for Birkenhead (36,000 fish over) was exceeded and for Late-run sockeye (47,000 fish or 1% under) was almost achieved. In total, spawning ground estimates were 1,497,000 fish or 24% less than the target. Sockeye escapements were below targets because: 1) post-season spawning escapement targets were higher than the targets applied in-season that were affected by the low bias in in-season Mission escapement estimates, 2) for Early Stuart sockeye, the en route loss was less than predicted by the management adjustment models, but by-catch in Fraser River First Nations fisheries was larger than planned, and 3) for Early Summer and Summer runs, en route losses were much higher than accounted for by in-season management adjustments derived from environmental models.

16. Based on a catch of 3,032,000 Late-run sockeye in all fisheries, the exploitation rate was 38% of the run (7,921,000 adults), and therefore less than the 42% limit for Late-run sockeye. The exploitation rate for Cultus Lake sockeye salmon (35%) exceeded the 30% limit.

17. Based on the TAC calculation method set out in the revised Annex IV, Chapter 4 of the Pacific Salmon Treaty, both countries exceeded their available TACs. United States catches represent overages of 328,000 Fraser sockeye and Canadian catches overages of 2,439,000 sockeye.

18. In United States Panel Areas, Treaty Indian and Non-Indian fishers were very close to their allocation targets for Fraser sockeye.

19. In Canada, Area B purse seines were 5,000 fish over, Area D gillnets were 110,000 fish under, Area E gillnets were 96,000 fish over, Area G trollers were 34,000 fish over and Area H trollers were 25,000 fish under their respective allocations of Fraser sockeye.

20. By-catches of non-Fraser salmon in commercial net fisheries regulated by the Fraser River Panel totaled 350 sockeye and 1,100 pink salmon in 2006. Catches of other Fraser and non-Fraser salmon included 13,100 chinook, 3,700 coho, 590 chum and 80 steelhead.

Allocation Status

As a result of the revised Annex IV, Chapter 4 of February 17, 2005 and the Commission Guidance of February 18, 2005, there were no paybacks carried forward to 2006. By Panel agreement (Feb. 14, 2008), no paybacks were generated by catch overages in 2006 to carry forward to 2007.

B. 2006 POST-SEASON REPORT FOR CANADIAN TREATY LIMIT FISHERIES

Introduction

Fisheries in 2006 were conducted in accordance with Annex IV of the Pacific Salmon Treaty (PST). The arrangements contained in Annex IV include those initially agreed to between Canada and the United States in June 1999, as well as additional agreements reached by the Commission and/or Panels since that time (e.g. Transboundary Chinook arrangements). The conservation-based approach commits both Parties to abundance-based management for all stocks covered by the Treaty.

Catches reported below provide the best information available to date, and may change when all catch information for 2006 has been received. The catches are based on in-season estimates (hailed statistics), on-the-grounds counts by Fisheries and Oceans Canada management staff and independent observers, logbooks, dockside tallies, and landing slips (First Nation fisheries), fish slip data (commercial troll and net), and creel surveys, logbooks and observers (sport and commercial).

Annex fisheries are reported in the order of the Chapters of Annex IV. Comments begin with expectations and management objectives, followed by catch results by species and, where available and appropriate, escapements. The expectations, management objectives, catches and escapements are only for those stocks and fisheries covered by the PST; domestic catch allocations have been excluded. A table attached at the end of this report summarizes 1995-2006 catches in Canadian fisheries that have, at some time, been under limits imposed by the Pacific Salmon Treaty.

Transboundary Rivers

Stikine River

Canada developed a fishing plan for the Stikine River based on the catch sharing arrangements outlined in Annex IV, Chapter 1, Paragraph 3 of the PST, including the new arrangements for Stikine Chinook and coho salmon agreed to on February 17, 2005. Accordingly, the 2006 management plan was designed to meet agreed escapement targets and the following harvest objectives: to harvest 50% of the total allowable catch (TAC) of Stikine River sockeye salmon in existing fisheries; to allow additional harvesting opportunities for enhanced sockeye stocks in terminal areas that were surplus to spawning requirements; to harvest up to 5,000 coho salmon in a directed coho fishery; and, to harvest approximately 11,000 to 14,000 large Chinook salmon in a targeted fishery, based on the pre-season forecast, recognising this number could change once inseason run projections were available. The Canadian percentage of the Chinook Allowable Catch (AC) fluctuates based on the terminal run size providing higher catch shares when abundance is low and lower catch shares in years of higher abundance. For example, when the AC is 5,000 large Chinook, the Canadian share is 90% of the AC; whereas, the percentage of the AC drops to 39% when the AC is 50,000 large Chinook salmon.

The 2006 season opened on May 7, statistical week 19 (SW19), and ended October 20 (SW42). Commercial gear consisted of up to two, 135 metre gillnets per fisher. The maximum mesh size was restricted to 204 mm. Only one of the two nets was permitted to be deployed as a drift net. Through June 17 (SW 24), the fishing zone for the lower Stikine commercial fishery extended from the international border upstream to near the confluence of the Porcupine and Stikine rivers and also included the lower 10 km of the Iskut River. Commencing SW 25 (week ending June 24), the fishing area in the Stikine River was increased upstream 26 km to the mouth of the Flood River.

Fishery openings in the upper Stikine commercial fishery, which is located upstream from the Chutine River, generally mirrored those in the lower Stikine commercial fishery. Fishers were permitted one net and effort was low throughout the season.

The First Nation fishery located near the community of Telegraph Creek, B.C. was active from late May to September. There were no time or gear restrictions imposed on this fishery.

The Chinook sport fishery is centred at the mouth of the Tahltan River, including the mainstem Tahltan River. Sport fishing activity also occurs less intensively in the Iskut River and other areas within the Stikine River drainage. Sport fishing activity commenced in late June and peaked in mid July. Extremely high water conditions in late June and July contributed to low catches of, and effort for, Chinook salmon in 2006.

Sockeye salmon

The pre-season forecast for Stikine sockeye salmon, as provided by the Canada/US Technical Committee for the Transboundary Rivers (TCTR), was for a terminal run size[1] of 179,000 fish, including 125,000 Tahltan Lake origin sockeye salmon (74,400 wild and 50,600 enhanced), 2,200 enhanced Tuya Lake sockeye, and 51,900 non-Tahltan wild sockeye salmon. For comparison, the previous 10-year (1996-2005) average terminal run size is approximately 196,100 fish.

Preliminary combined catches from the Canadian commercial and First Nation gillnet fisheries in the Stikine River in 2006 included a record 101,209 sockeye, 94% above the 1996-05 average of 52,175 fish. The lower Stikine commercial fishery harvested 95,790 sockeye, while the upper Stikine commercial and First Nation fisheries harvested a total of 406 and 5,094 sockeye, respectively. The preliminary estimate of the total contribution of sockeye salmon from the Canada/US fry-planting program to the combined Canadian First Nation and commercial catches is 54,957 fish, or 54% of the catch. In addition to these catches, 1,615 sockeye salmon were taken in a test fishery located near the international border. For reasons explained below, no fish were harvested in the Tuya River terminal fishery in 2006.

A total of 53,885 sockeye salmon was counted through the Tahltan Lake weir in 2006, 100 % above the 1996-2005 average of 26,963 fish. The 2006 count was the fifth highest count on record (1959-2006) and was approximately 80% above the upper end of the escapement goal range of 18,000 to 30,000 fish. An estimated 26,100 fish (48%) originated from the fry-planting program, which is close to the 50.0% contribution of smolts observed in 2003, the principal cycle year contributing to the 2006 run. A total of 400 sockeye salmon was sacrificed at the weir for stock composition analysis. In addition, a total of 3,403 sockeye salmon was collected for broodstock, resulting in a spawning escapement of 50,052 sockeye salmon in Tahltan Lake.

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[1] Terminal run excludes allowances for US interceptions that occur outside the District 108 and 106 gillnet fisheries.

The spawning escapements for the non-Tahltan and the Tuya stock groups are calculated using stock ID, test fishery and in-river catch data. The preliminary escapement estimate for the non-Tahltan stock conglomerate is 43,300 fish. This estimate is 34% above the recent 10 year average and slightly above the upper end of the escapement goal range of 20,000 to 40,000 fish. Aerial survey counts of non-Tahltan sockeye, however, indicated an average return. The index count of 943 fish was close to the 1996-05 average of 983 fish.

An estimated 9,700 sockeye returned to the lower Tuya River in 2006. Inability to harvest these fish in the terminal area continues to be a concern and these concerns increased this year when a rock slide essentially wiped out several years of development of the primary harvest site. When they return, the adult sockeye from the Tuya Lake outplants unsuccessfully attempt to ascend the impassable barriers in the lower reaches of the Tuya River until they either perish or back out of the system. Some of these drop outs end up in nets fished in the Telegraph Creek area raising concerns over poor quality, injured and battered up fish. Others stray[2] into Stikine River tributaries raising concerns over impacts on wild salmon stocks.

Based on the in-river run reconstruction of the Tahltan Lake run expanded by run timing and stock ID data in the lower river and estimated harvests of Stikine sockeye in US terminal gillnet fisheries, the preliminary post-season estimate of the terminal sockeye run size is approximately 290,322 fish. This estimate includes 181,983 Tahltan Lake sockeye, 38,072 Tuya Lake sockeye, and 70,267 sockeye of the non-Tahltan stock aggregate. A Stikine run size of this magnitude is 48% above the 1996-2005 average terminal run size of 196,100 sockeye salmon. The preliminary post-season estimate of the Canadian TAC is approximately 115,200 sockeye; the actual catch of approximately 101,000 sockeye was about 12% below the Canadian TAC.

In-season management was influenced significantly by run size projections derived from the Stikine Management Model (SMM), which was updated and refined by the TCTR prior to the season. In-season run projections ranged from 238,000 fish in SW29 (16-22 July) to 339,200 fish in SW33 (13-19 August). The final SMM projection indicated a terminal run size of approximately 339,200 sockeye and a TAC for Canada of approximately 140,100 sockeye.

The sockeye mark-recapture programme initiated in 2000 continued in 2006. The primary objectives of this programme are to provide an estimate of abundance independent from the SMM and to examine the feasibility of developing an alternate abundance-based management tool for Stikine mainstem sockeye. The preliminary mark-recapture estimate of the total in-river run size is approximately 250,600 sockeye salmon. This estimate is only 19% above the in-river run estimate of 209,000 sockeye based on the traditional method of reconstructing the in-river Tahltan run then expanding it using stock ID and run timing data. Further analyses are required to: a) determine which estimate should be used as the final post season estimate; and b) to compare the performance of the mark-recapture projections versus those of the SMM, and choose one or both as the principal in season management tool(s).

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[2] Straying of Tuya sockeye has been confirmed using radio telemetry and sampling for thermal marks.

Coho salmon

Poor prices in concert with the relatively low coho salmon quota of 5,000 fish resulted in a catch of only 72 coho, 83% below the 1996-2005 average of 406 coho salmon. All of the coho were caught incidentally in the targeted sockeye fishery.

The cumulative weekly CPUE index of 5.54 observed in the coho test fishery was 25% above the recent 10 year average of 4.51 cumulative CPUE. Aerial surveys of six index spawning sites did not follow suit with a combined count approximately 40% below the recent 10 year average.

Chinook salmon

The pre-season forecast of Stikine Chinook salmon, as provided by the Canada/US Technical Committee for the Transboundary Rivers (TCTR), was for a terminal run size of 60,600 large Chinook salmon. (Jack Chinook, i.e. fish with a mid-eye to fork length <660mm or a fork length of <735mm, were excluded in both the run size projections and management considerations). For comparison, the previous 10-year (1996-2005) average terminal run size was approximately 51,800 large Chinook.

The total combined gillnet catch of Chinook salmon in the First Nation and commercial fisheries included 15,776 large Chinook and 2,078 jacks compared to 1996-2005 averages of 4,227 large Chinook and 950 jacks. The 2006 sport fishery harvested an estimated 40 large Chinook, below the recent 10 yr average of 200 fish. Obviously the 2006 catch eclipses the recent 10 yr average due to the targeted Chinook commercial fishery which commenced in 2005. The preliminary post season estimate of the terminal run is 64,300 large Chinook which translates into a Canadian TAC of 16,900. The total Canadian catch of 15,766 large Chinook salmon was below the treaty entitlement.

In-season management was influenced significantly by run size projections derived from the Stikine Chinook Management Model (SCMM) and a joint Canada-US mark-recapture program. In-season terminal run size projections ranged from 61,000 fish in SW26 (25 June to 01 July) to 73,950 fish in SW29 (16 July to 22 July). The final SCMM inseason projection indicated a terminal run size of approximately 61,600 large Chinook; whereas, the final inseason mark-recapture estimate was 86,300 large Chinook. According to these estimates, the TAC for Canada ranged from approximately 16,000 to 25,000 large Chinook salmon. To honour Annex IV, Chapter 1, Paragraph 3(a)(vii), which identifies the will of both Parties to spread the Chinook harvest over the season, weekly fishery openings were announced based on weekly guideline harvests developed from current run projections apportioned by historical run timing data. Overall, catches fell within weekly guidelines in nine of the twelve openings during the Chinook season. Extreme fluctuation in water levels affected the ability to meet weekly quotas. During the first half of the season, catches were generally below respective guideline harvests. In response, the commercial fishing zone in the lower Stikine River was extended upstream approximately 25 km in SW25 (18-15 June). Management emphasis switched to sockeye salmon in SW27 (02 July to 08 July).

In addition to the mark-recapture study and aerial surveys, genetic samples were collected on a weekly basis from Chinook caught in the US District 108 fishery and from weekly catches taken in the Canadian commercial fishery. These data will be used to assess run timing of Stikine stocks in District 108 and the lower Stikine commercial fishery.

The count of 3,815 large Chinook salmon through the Little Tahltan River weir, the principal Stikine River Chinook stock, was below the 1996-2005 average of 7,407 large Chinook. The count was close to the 2006 escapement goal of 4,000 large Chinook which is the mid-point of the escapement goal range of 2,700 to 5,300 large Chinook. The weir count of 102 jack Chinook was approximately 50% of the previous 10-year average count of 213 fish. The preliminary total escapement estimate within the Canadian portion of the Stikine River based on a mark-recapture estimate is 28,893 large Chinook. This estimate is 33% above the 2006 target of 21,000 large Chinook, the mid-point of the escapement goal range of 14,000 to 28,000 large Chinook.

Joint sockeye enhancement

Joint Canada/US enhancement activities continued with approximately 4.54 million sockeye eggs collected at Tahltan Lake in the fall of 2006; this was below the target of 6.0 million. The egg take program commenced slightly later than normal due to a rock fall in the season in the lower Tuya that significantly set-back progress which had been made developing terminal harvesting capability. A field inspection in mid-August involving engineers and biologists did not arrive at any obvious solutions. Since the ability to harvest terminal surpluses is important to the future success of this program, the option of reducing the egg take target for 2006 was explored with the US; however, an agreement on reducing the target was not reached. The need for a period when wild spawning could occur without disruption caused by the egg take activity, in concert with the initial delay, contributed to the failure to reach the egg take target of 6.0 eggs. In previous years, the end date for the egg take was set at September 25. In 2006, the plan was to extend the program until September 30; however, the last egg take was conducted on September 27. At this time, flying conditions were very poor—eggs from the last take nearly did not make it to the hatchery and the decision was made to suspend operations.

Approximately 1.35 million fry were out-planted into Tahltan Lake in early to late May 2006. The fry originated from the 2005 egg-take and were mass-marked in the hatchery with thermally induced otolith marks. The balance of 2.37 million fry originating from the 2005 Tahltan Lake egg take were released into Tuya Lake in mid June 2006.

Approximately 2.2 million sockeye salmon smolts were enumerated emigrating from Tahltan Lake in 2006, 65% above the 1996-2005 average smolt count of approximately 1.32 million smolts. The contribution of hatchery origin fish was approximately 0.36 million smolts and represented 16% of the emigration.

For the third consecutive year, funding from the PSC Northern Fund was provided to address harvest and fish straying issues in the Tuya River. To address problems associated with fish capture in the lower Tuya River, a new fishway/trapping apparatus was designed and constructed in Vancouver during the spring of 2006 and transported to Whitehorse. Unfortunately the Tuya fish trapping project was not prosecuted because of the major rock slide at the Tuya River fishing site that occurred sometime in June 2006. The rockslide rendered the fishing site, which the fish trap was groomed for, unusable due to changes in river hydrology and unsafe working conditions. The harvest structure was designed to increase the terminal harvest capability for enhanced Tuya sockeye salmon while still allowing indigenous species to bypass the capture site. A steering committee, consisting of Canadian and US engineers and others visited the site in August 2006 to assess the conditions and to consider and discuss other fish capture options. The steering committee is presently addressing the challenge of fish capture, but an approach to Tuya fish harvest options in the 2007 has not yet been finalized

The Tuya straying study report, funded by the Northern Fund, was completed in February 2006. The objective of the report was to assess Tuya River sockeye salmon (strays) distribution, spawning activity and success, and spawning ground competition. The authors were also charged with providing a literature review on straying salmon and effects of straying on natural salmon populations. The authors concluded that, "given the results of the literature review and the data collected to date in the Stikine River, the probability of genetic risk of Tuya River blocked fish appears to be extremely low. However, it is prudent to suppose that given a long enough period of time and a large enough number of that some successful straying and interaction of Tuya River fall back fish could take place".

Taku River

As with the Stikine River, the fishing plan developed by Canada for the Taku River was based on the arrangements in Annex IV, Chapter 1, Paragraph 3 of the Pacific Salmon Treaty, including the recent amendment to Paragraph 3(b) regarding Chinook salmon. Accordingly, the plan addressed conservation requirements and contained the following harvest objectives: to harvest approximately 3,000 to 7,000 Chinook salmon in a targeted Chinook fishery (based on the pre-season forecast) recognizing this number could change once inseason run projections were available; to harvest 18% of the TAC of wild Taku River sockeye salmon plus up to 20% of the projected sockeye escapement in excess of 100,000 fish; to attain a 50% share of the catch of enhanced Taku River sockeye; and, to harvest 3,000 to 10,000 coho salmon in a directed coho fishery, depending on in-river run size projections,. The 2006 season opened on 30 April, SW18, and ended in SW40 (week ending October 7). Fishing area and gear restrictions were similar to previous years with the exception that mesh sizes up to 204 mm could be used.

Sockeye salmon

The Canadian pre-season run outlook was for a total sockeye run of 204,000 sockeye, approximately 20% below the previous 10-year average total run size of 254,000 sockeye.

The 2006 Canadian sockeye catch totaled 21,178 sockeye, 21,093 of which were caught in the commercial fishery and 85 in the First Nation fishery. An additional 278 sockeye were taken incidentally in the coho test fishery. The commercial catch was below the 1996-2005 average of 29,000 sockeye. Enhanced sockeye returns were expected to be low; the preliminary estimate of the contribution of sockeye salmon from the Canada/US enhancement program to Canadian fisheries is only 3%, i.e. 679 fish.

The estimated total spawning escapement of 135,667 sockeye salmon in the Canadian section of the Taku River is well above both the interim escapement goal range of 71,000 to 80,000 fish and the 1996-2005 average escapement of 103,000 sockeye. Based on weir counts, escapements to the Little Trapper, Tatsamenie and Kuthai lake systems were 25,260, 22,475 and 1,015 sockeye, respectively. The Little Trapper escapement estimate was 96% above the 1996-2005 average; likewise the Tatsamenie count was 216% above average. The counts at both locations were the second highest on record. Conversely, the Kuthai Lake count was 80% below the 1996-2005 average, and the lowest on record. The enumeration project at King Salmon Lake was operated for the full migration period for the third year in a row; 2,177 sockeye were counted, 26% below the average of the previous two years.

Projections of the total sockeye run size, TAC, and total escapement were made frequently throughout the fishing season. The estimates were based on the joint Canada/US mark-recapture program, the estimated interception of Taku River sockeye in US fisheries, the catch in the Canadian in-river fishery, and historical run timing information. The preliminary post-season estimate of total run size is approximately 221,576 wild sockeye with a TAC of 141,576 to 150,576 sockeye. Escapement is estimated at 131,300 wild sockeye. Preliminary analysis indicates that the Canadian catch of wild sockeye (20,499 fish) represented 13.6-14.5% of the TAC of wild sockeye. The preliminary estimate of the total run of enhanced Taku sockeye salmon is approximately 7,642 fish of which Canada harvested 679 sockeye and an estimated 4,367 spawned with the US harvesting the balance.

Coho salmon

The combined commercial and First Nation catch of 9,480 coho salmon was 213% above the 1996-2005 average catch of 4,447 coho salmon. The commercial fishery took 9,180 coho of which 3,610 fish were taken in the directed coho fishery, i.e. after SW33. A total of 300 coho were taken in the First Nation fishery. A test fishery, which started in SW36, harvested 2,795 coho. Preliminary mark-recapture data indicated a spawning escapement of 161,631 coho salmon in 2006. This estimate is well above the previous 10-year average of 99,586 fish, and more than 5 times the mid-point of the interim escapement goal (27,500 – 35,000 fish). The preliminary estimate of the total in-river run into the Canadian section of the drainage was 173,906 coho. According to the PST harvest arrangements for Taku coho salmon, Canadian fishers were entitled to harvest up to 10,000 coho salmon in a directed fishery at a run size of this magnitude.

Chinook salmon

The bilateral pre-season run outlook was for a terminal run of 64,150 large Chinook, approximately 15% above the previous 10-year average of 54,400 fish.

The 2006 Canadian catch of large Chinook was 7,720 fish, most of which were caught in the commercial fishery. The First Nation fishery harvested 222 fish and an estimated 186 Chinook were taken in the recreational fishery. The commercial catch of 7,312 large Chinook was well above the 1996-2005 average of 2,119 fish; however, prior to 2005 Chinook were not targeted and all Chinook were harvested incidentally in the sockeye fishery. The harvest of jack Chinook was 198 fish, slightly below the average of 291 fish.

Preliminary estimates derived from the joint Canada/US Chinook mark-recapture program indicate a total spawning escapement of approximately 41,831 large Chinook salmon, just short of the target of 42,500 fish for 2006 (the mid-point of the escapement goal range of 30,000 to 55,000 fish). This spawning escapement estimate is also below the 1996-2005 average of 51,421 Chinook. Chinook escapement counts were average to well below average in the six Taku River aerial index areas surveyed. The combined six-stream index count of 5,537 fish was 44% below the previous 10-year average of 8,374 Chinook.

In-season projections of the terminal Chinook run size, allowable catch (AC), and escapement were made starting in SW21. The estimates were based on the joint Canada/US mark-recapture program, the estimated interception of Taku River Chinook in US fisheries, the catch in the Canadian in-river fishery, and historical run timing information. The final in-season estimate of terminal run size was approximately 64,237 Chinook with an overall AC of 15,337 fish plus base level catches (BLC) of 5,000 fish (3,500 US and 1,500 Canada). The Canadian total allowable catch (AC plus BLC) was 9,257 Chinook, of which 83.4% was taken. The effective total allowable catch, based on summation of joint inseason weekly guidelines, was 8,190 fish of which 94.3% was taken. Postseason analysis of the mark-recapture results, including spawning ground tag recovery efforts, is in progress.

Joint sockeye enhancement

Joint Canada/US enhancement activities at Tatsamenie Lake continued in 2006 and an estimated 5 million viable eggs were delivered to the Snettisham Hatchery in Alaska for incubation and thermal marking. Unlike recent years, the egg take target of 5.0 million eggs was achieved primarily due to the near record high escapement to Tatsamenie Lake.

In early June 2006, approximately 1.6 million fry were transported from Snettisham Hatchery to Tatsamenic Lake. The green egg-to-fry survival was approximately 94%; IHNV was not a problem this year. Approximately one half of the fry were released immediately; the other half was held overnight and then released unfed.

The 2006 Tatsamenic Lake sockeye smolt out-migration was estimated to be approximately 164,757 fish. The enhanced contribution, based on preliminary thermal mark analysis, was estimated to be 16%.

Alsek River

Although catch sharing of Alsek salmon stocks between Canada and the US has not been specified, Annex IV of the PST does call for a co-operative development of abundance-based management regimes for Alsek Chinook, sockeye and coho stocks. Instead of managing to system-wide goals, which for the most part have been as yet unverifiable, the TCTR has established index goals for the Klukshu River stocks. Historically, the principal escapement-monitoring tool for Chinook, sockeye and coho salmon stocks in the Alsek drainage has been the Klukshu River weir, operated by Fisheries and Oceans Canada and the Champagne-Aishihik First Nation. The Klukshu River is a tributary to the Tatshenshini River, which is the major salmon producing river system of the Alsek drainage.

Based on joint stock-recruitment analyses conducted on Klukshu Chinook and sockeye salmon, Canadian and US managers agreed to a minimum escapement goal of 1,100 Klukshu Chinook salmon and an escapement goal range of 7,500 to 15,000 for Klukshu sockeye salmon for the 2006 season. An escapement goal for Klukshu coho salmon has not yet been developed.

Highlights of the 2006 season included a record low return of Chinook salmon. A total of 2 Chinook salmon were harvested in the First Nation fishery, which was well below the 10-year average (1996-2005) of 168 fish. The First Nation fishery harvested an estimated 1,321 sockeye salmon, 9% higher than the 10-year average (1996-2005) of 1,211 fish. No coho salmon were harvested in the First Nation fishery.

Due to the poor return, retention of Chinook salmon in the recreational fishery was prohibited on July 20. The recreational fishery harvested only 17 Chinook, which is 91% below the 10-year average. The sockeye catch was below average with 7 retained and 20 live-released. To date, no coho catch has been recorded. Recreational catches have been adversely affected in recent years by significant changes in river channelisation.

The Klukshu weir count of 568 Chinook salmon was 27% of the previous 10-year (1996-2005) average of 2,091 fish and is the lowest count on record. The estimated spawning escapement of 566 Chinook salmon above the weir was well below the minimum escapement goal of 1,100 Klukshu Chinook salmon. Aerial survey counts, conducted by ADF&G, of Chinook in the Takhanne and Blanchard rivers and Goat Creek were all well below average.

The weir count and spawning escapement of Klukshu River sockeye salmon was 13,455 and 12,890 fish, respectively. The early-run count of 247 sockeye was 8% of the previous 10-year (1996-2005) average of 2,963 fish; however, the late-run count of 13,208 fish was 27% higher than the previous 10-year average of 10,380 sockeye salmon. The overall spawning escapement of 12,890 sockeye salmon in the Klukshu River was near the upper end of the escapement goal range (7,500 – 15,000). A below average sockeye escapement was recorded in the neighbouring tributary of Village Creek where an electronic counter recorded an estimated 979 sockeye, 51% of the 10-year average.

The Klukshu weir count of 420 coho salmon was 15% of the previous 10-year average of 2,882 fish. The weir is removed prior to the completion of the coho return due to icing conditions and generally does not include fish that migrate after mid-October. In 2006, the weir was pulled on October 12th.

Northern British Columbia Pink Salmon

Areas 3-1 to 3-4 Pink Net Catch

For 2006, Canada was to manage the 3-1 to 3-4 net fishery to achieve an annual catch share of 2.49% of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 pink salmon.

In the Canadian northern boundary area, average pink salmon returns were anticipated for Areas 3 and 4. Returns to Areas 3 and 4 were well below average. Similar returns were experienced for SE Alaska pink stocks adjacent to the northern boundary area. The Canadian pink catch in Sub-areas 3-1 to 3-4 was 228,378. The percent of AAH has not yet been calculated.

The total Canadian pink catch of 228,378 in sub-areas 3-1 to 3-4 is lower than the 1985-2000 average catch of 1.46 million. The below average harvest resulted from a poor north coast pink return and reduced fishing opportunities. The percentage of the 2006 Area 3 net catch taken in sub-areas (1-4) was 95.3%, which was well above the 1985-2000 average of 58%.

Pink escapements in 2006 were well below target in Areas 3 and 4

Area 1 Pink Troll Catch

For 2006, Canada was to manage the Area 1 troll fishery to achieve an annual catch share of 2.57% of the AAH of Alaskan Districts 101, 102 and 103 pink salmon.

The Canadian commercial troll fishery in Area 1 was open in the northern portion of the area from June 15 to September 30. The fishery harvested a total of 34,854 pink salmon. The percent of AAH has not yet been calculated.

Chinook Salmon AABM Fisheries

North Coast B.C. (NBC) troll and Queen Charlotte Islands (QCI) sport fisheries:

The pre-season abundance index for North Coast B.C. troll and Q.C.I. Sport fisheries in 2005 was 1.53, which allowed a total catch of 223,200 Chinook salmon in these fisheries. Preliminary estimates indicate a total catch of 222,863 Chinook salmon; 158,363 caught in commercial troll fisheries and 64,500 caught in sport fisheries.

The North Coast B.C. troll fishery was opened for Chinook fishing from October 1, to December 31, 2005 and from June 7 to September 30, 2006. Only 25 Chinook were caught in the fall of 2005. The majority of the 2006 fishery was conducted under a demonstration fishery to examine the application of individual transferable quotas in the troll fishery. A total of 153,214 Chinook were caught under the quota system. A traditional derby style fishery accounted for 3,887 Chinook. The size limit was 67 cm. Barbless hooks and revival boxes were mandatory in the troll fishery. A test fishery was conducted in areas off the west coast of the Queen Charlotte Islands and 1,287 legal sized Chinook were caught.

Sport fishing was open with a daily limit of 2 Chinook and a possession limit of 4 Chinook. An estimated 64,500 Chinook were caught in the Queen Charlotte Islands sport fishery. A minimum size limit of 45 cm was in effect and barbless hooks were mandatory in the sport fishery.

Chinook ISBM Fisheries

Northern and Central BC Fisheries

Fisheries included in this category are commercial net fisheries throughout north and central BC, marine sport fisheries along the mainland coast and freshwater sport, and Native fisheries in both marine and freshwater areas. Under the PST, obligations in these fisheries are for a general harvest rate reduction (estimated in aggregate across fisheries) for ocean mixed-stock fisheries and for stock-specific objectives (i.e., achieving the escapement goal) in terminal areas.

North Coast commercial gillnet catches totalled 11,699 Chinook from Areas 3 to 6 (from fish slip catch data). Chinook catch in Areas 3 and 4 were 6,283 and 5,264 Chinook respectively. 29 Chinook were reported caught with gillnets from Area 5 and 123 Chinook were reported caught in Area 6. The Skeena River test fishery index for Chinook salmon was slightly higher than 2005. A total of 1,178 large Chinook and 51 jacks were caught in the test fishery.

Central Coast commercial gillnet catch totaled 5,231. Seine fisheries were non retention for Chinook.

Johnstone Strait commercial fisheries including Area B seine and Area D gillnet are managed by South Coast and corresponding catches are reported in the South Coast section of this report.

Tidal sport catches from lodges operating in the Rivers Inlet, Hakai Pass and Bella Bella areas totalled slightly fewer than 9,400 Chinook. Overall, total combined catch for these areas is up from 2005. Detailed surveys of private anglers were not conducted throughout this area this year, but private catches are generally less that the lodge component. No estimate is available for independent anglers.

Tidal sport catches near the mainland coast of Northern BC were only estimated from August 1 to September 15, 2006. This survey was conducted after the main Chinook sport fishery in Areas 3 and 4 but indicates significant increases in effort over the last survey conducted in 2002. Chinook catch was estimated at 1,410 for the time surveyed. Total catch for the 2006 sport fishery probably exceeds the 2002 estimate of 8,000 Chinook. No freshwater creel surveys were conducted in the North Coast in 2006. The sport catch from the Skeena River fishery (downstream of Terrace, B.C.) included 6,280 Chinook in 2003. Effort continues to increase in tidal and freshwater sport fisheries but Chinook abundance was less in 2005 and 2006 than the previous 3 years. Effort levels in the lower Skeena River in 2003 were double those measured by the previous survey conducted in 1995.

Catches by First Nations in the North Coast exceeded 16,500 Chinook. Nisga'a catches from the Nass River were 7,889 Chinook. Haida catches on the Queen Charlotte Islands were estimated at 2,450 Chinook. Only a portion of catches from Native fisheries in the Skeena have been reported but current estimates exceed 6,300 Chinook. Chinook catch by First Nations on the Skeena appear to slightly better than 2005.

Catches by First Nations in the tidal portion of the Central Coast were reported as 202 Chinook while the non-tidal reported catch to date of terminal Atnarko River Chinook was 3,811 fish.

Overview of Northern and Central BC Chinook Stock Status

Since an assessment of the ISBM fisheries will be relative to the escapements achieved in the Chinook indicator stocks, a brief overview of the 2006 returns is provided. Northern BC terminal runs were better than 2005 which was the lowest since 1995. Preliminary estimates of Nass River escapements increased to 17,728. Skeena River Chinook escapements were estimated at approximately 33,000. The Yakoun River was the only indicator stock that remained stable with an estimated escapement of 5,000 Chinook. Kitimat River Chinook escapements were not estimated in 2006. Dean Chinook escapement was estimated at 3,700. The Rivers Inlet combined (Chuckwalla, Kilbella and Wannock) Chinook escapement estimate was 3,930.

Fraser River Sockeye

The sockeye run-size forecast for 2006 resulted in a preseason plan based on the 50% probability level of abundance with a predicted diversion through Johnstone Strait of 67%. The pre-season plan also incorporated provisions to protect Early Stuart and Late Run stocks in addition to Cultus and Sakinaw Lake sockeye. The US share of the annual Fraser River sockeye salmon total allowable catch (TAC), harvested in the waters of Washington State was set at 16.5% as per the PST Annex IV Chapter IV agreement. There were no catch overages of Fraser River sockeye from previous years to address. The panel adopted 50% probability level forecasts for all sockeye run timing groups for planning fisheries. The 2006 50% probability forecasts for the four management aggregates are as follows: Early Stuart 84,000; Early Summer 1.3 million; mid-Summer Run 7.2 million; and Late Run 8.8 million (of which 562,000 were Birkenhead type).

The forecast for Early Stuart was lower than average (129,000 for the 2006 cycle) primarily due to low spawner abundance in the brood year. The Early Summer forecast was approximately double the historical average (586,000), as a large component of the brood year was protected from harvest pressure due to conservation measures taken in 2002. The majority of returns were destined for the Thompson/Shuswap area although above average returns were expected for upper Fraser stocks (Bowron and Nadina). The Summer run forecast was considerably larger than the historical average for this cycle (3,943,000), mainly due to a record escapement to the Quesnel system in 2002. For 2006, the Quesnel forecast (4,613,000) made up more than half of the Summer run forecast. However, the Quesnel fry weight was the lowest on record creating a concern that forecast returns might not be realized. The larger than cycle average forecast of Late run stocks reflects the unexpectedly large return in the brood year. While concerns for early entry and the associated elevated rates of pre-spawn mortality continue, conservation concerns for the Late run stocks were focused on Cultus Lake sockeye. The allowable exploitation rate of 30% (or 25% at the 75p level) for Cultus is higher than the 10-12% allowable rate in recent years and was to be calculated based on the exploitation rate of co-migrating Late run stocks excluding the earlier migrating Birkenhead group and Harrison fish.

Late Run sockeye have historically delayed in the Gulf of Georgia for 4-8 weeks prior to entering the Fraser River. Beginning in 1996, this behaviour has changed to one where there has been a shorter delay and occasionally immediate river entry. This unusual behaviour has been associated with high levels of en-route and pre-spawn mortality. For example, in the Cultus & Widgeon systems, the pre-spawn mortality reached levels of 90% and greater in 2000 and 2001, though dropping substantially in recent years (2002 (<20%), 2003 (23%), 2004 (<10%), 2005 (13%)). Conservation objectives for Late-run sockeye and Cultus sockeye were instrumental in pre-season planning for 2006.

The pre-season plan made several assumptions, including:

- Late Run sockeye would continue their early migration behaviour with an associated en route mortality rate of 45 % based on a 50% peak river entry date of September 9 which is the historical timing for the 2006 cycle;
- that a six day separation exists in the 50% marine migration timing between Summer run (August 9) and Late run (August 15) sockeye.
- that although the capability to assess in-season run size and migration timing would be good for Summer Run and Late Run sockeye, an in-season run size estimate for Cultus Lake sockeye would not be possible due to low abundance relative to co-migrating sockeye stocks so the harvest impacts on Cultus Lake sockeye would be assessed using other Late run stocks as a proxy; and
- that using Canada's escapement plan which varies escapement requirements as run size changes for all management aggregates would provide a more flexible approach to management than in recent years when Late run sockeye were managed to a fixed exploitation rate.

In past years, the Fraser River sockeye spawning targets were based upon a Rebuilding Strategy. Due to some shortcomings in this approach, the department adopted a new escapement strategy for Fraser River sockeye in 2005. The process of developing this new approach is known as the Fraser River Sockeye Spawning Initiative and has since been modified as a result of a series of consultation workshops in the spring of 2006.

The Canadian fishing plan also addressed conservation specific-concerns for:

- Upper Fraser River/Thompson River coho
- Nimpkish River, Rivers Inlet & Smith Inlet sockeye
- Thompson River steelhead
- Lower Georgia Strait Chinook
- Mainland Inlet Pinks
- Inshore Rockfish

In-Season Assessment

The main challenge facing the Fraser Panel in 2006 was that of estimating run size in-season and managing fisheries in the face of highly uncertain Summer and Late run run size estimates. A chronology of run size changes through the 2006 season is shown in the table below (shaded cells represent the period when commercial, as well as First Nation and recreational, fishery decisions were made):

Run timing group	pre-season (50p)	18-Jul	04-Aug	11-Aug	17-Aug**	18-Aug	22-Aug	25-Aug	29-Aug	05-Sep	08-Sep	29-Sep***	11-Oct ****
EStu	84k	70k											70k
ESum	1.3M		50p*		1.5M	1.7M				1.45M			1.45M
Sum	7.2M			75p*		4.02M	3M*	3.5M	2.5M	2M			2M
BK	562k											475k	275k
L Lates	8.3M							10M		9.2M	7.5M	4.72M	4.74M

* for management purposes, not official adoption of run size
** 17-Aug was a small group meeting
*** 29-Sep was the last in-season meeting
**** post-season meeting (11-Oct)

As shown by the shaded cells, these fisheries took place prior to the large Late run run size assessment downgrades. The dramatic decrease in the Summer run abundance is mainly due to the weak showing of the Quesnel return. In-season assessments estimated the Quesnel component of the Summer run to be approximately 525,000 compared to the forecast of 4.6 million. The current in-season estimated returns of Fraser River sockeye compared to the forecasts used for pre-season planning purposes are shown in the table below:

Run Timing Group	**Pre season forecast (50% probability forecast)**	**Final In-Season estimate of run size using Mission data**
Early Stuart	84,000	70,000
Early Summer	1,303,000	1,450,000
Mid-Summer	7,158,000	2,000,000
Late Run	8,812,000	5,215,000
Total Fraser sockeye	***17,357,000***	***8,735,000***

Based upon the final in-season run size assessment the total Canadian harvest of 4.5 million sockeye was roughly double the Canadian total allowable catch of 2.2 million sockeye. The US harvest of 701,000 sockeye was also double the US TAC of 348,000. The final in-season estimated exploitation rate on Cultus Lake sockeye was estimated at 58% (as estimated by Late run harvest and run size), compared to the pre-season goal of 30%.

Fisheries

Harvest opportunities on Summers were limited at the beginning of their migration by a closure to protect Early Stuart sockeye.

Sockeye-directed harvest opportunities were available in Canada for all harvesting sectors. First Nations food, social, and ceremonial fisheries began in late July, after the majority of Early Stuart had passed through fishing areas. Recreational harvest in marine waters was open to sockeye retention from late July to mid-September and in-river from early August to early September. Commercial fisheries commenced the week of August 6th and were finished by September 6th.

Preliminary estimates of Fraser River sockeye catch in 2006 are as follows:

Test fisheries	127,000*
Canadian Catch	**4,566,100**
Canadian commercial fisheries (includes commercial selective & FN economic)	3,705,000
Canadian First Nation FSC fisheries	674,500
Canadian recreational fisheries	186,600
United States Catch	**700,900**
US Treaty Indian & non-treaty Indian fisheries	216,600
US Treaty Indian ceremonial fisheries	484,300

*includes Canadian and US Test-fishery catches.

The above numbers reflect the catch estimates as of December 1, 2006 and are still subject to some minor changes. Canadian catch includes 600 sockeye caught in the Albion Chinook test fishery. Canadian recreational catch number is for in-river and marine fisheries. US catch includes 500 sockeye caught in ceremonial and subsistence fisheries.

Stock Status

Environmental conditions this summer were somewhat difficult for sockeye passage. Discharge was below average for the entire season and was the lowest on record for most of August and September. Water temperature was well above average for most of the Early Stuart migration period, then dropped and did not exceed 19C for the Early Summer and Summer migration.

The preliminary spawning ground escapement estimate for Early Stuart sockeye is 35,600, which is well below the in-season escapement goal of 68,500, but above the expected escapement (18,000) given the predicted en-route mortality. The preliminary estimate of the Early Summer Run sockeye escapement totals 387,726. Although this escapement fell below the record 2002 brood escapement (460,205) by 16%, it is 20% higher than the 1986-2002 cycle average (321,945). The 2006 total spawning escapement is 67% of the in-season spawning escapement target (580,000), 63% of the PSC in-season estimate of potential escapement of 612,000 (accounting for in-river harvest estimates above Mission) and 93% of the PSC predicted spawning escapement of 415,000 adjusted to account for expected en-route losses above Mission. The preliminary estimate for Summer Run sockeye stocks enumerated in 2006 totals 832,881 fish returning to the spawning grounds. Relative to the same stocks enumerated in 2002, this escapement is only 38% of the brood year level (675,573 vs. 1,765,933). The total estimate for all enumerated stocks exceeds the Pacific Salmon Commission in-season estimate of potential escapement based on the Mission hydroacoustic program of 643,000 (accounting for in-river harvests above Mission) and the predicted spawning escapement of 630,000 (adjusted to account for expected en-route losses above Mission). The in-season gross escapement estimates from the Mission hydroacoustics program for the Birkenhead, and Late Run (excluding Birkenhead) escapement are 169,300and 2,143,500, respectively. A summary of preliminary spawning escapement estimates for all stock groups will not be available until early January, 2007.

Fraser River Pink Salmon

2006 was in off-cycle year for Fraser River pink salmon. No fisheries were conducted on these stocks.

Southern B.C. AABM Chinook Salmon

Chinook salmon in southern BC are managed under the coastwide management regime agreed to in the 1999 Agreement within the PST. This includes Aggregate Abundance Based Managed (AABM) fisheries in southeast Alaska, Northern BC, and off the WCVI.

The offshore recreational fishery, First Nations hook and line fishery, and the WCVI Area G troll fishery are all components of the AABM Chinook fishery. For the period October 2005 through September 2006 the forecasted Chinook abundance index was 0.75 (from calib. #0604, Chinook Technical Committee, Pacific Salmon Commission). This provided a total allowable catch of 160,400 Chinook for the WCVI AABM fisheries.

Pre-season anticipated harvest and Post Season Preliminary Catch Estimates for 2005-2006 AABM

	Pre-Season	Post-Season
WCVI Abundance Index	0.75	(not available)
WCVI AABM Chinook TAC	160,400	(not available)
AABM Recreational Catch	50,000	37,905
First Nations AABM Catch	5,000	5,000
AABM (Area G) Troll Catch	105,400	103,978
TOTAL AABM CATCH	**160,400**	**146,883**

WCVI AABM Chinook Fisheries

Recreational

The WCVI recreational fishery was monitored through a creel survey and reported catches from lodges. The creel surveys monitor catch from both the AABM and ISBM Chinook fisheries. Creel observers conducted 15,347 fishing interviews from 19 landing sites from June 01 until September 30, providing 18% effort coverage for the 2006 season. Additional sources of catch and effort information from charter patrolmen and fishery officers were used to bolster effort counts, and in some areas, to compare CPUE.

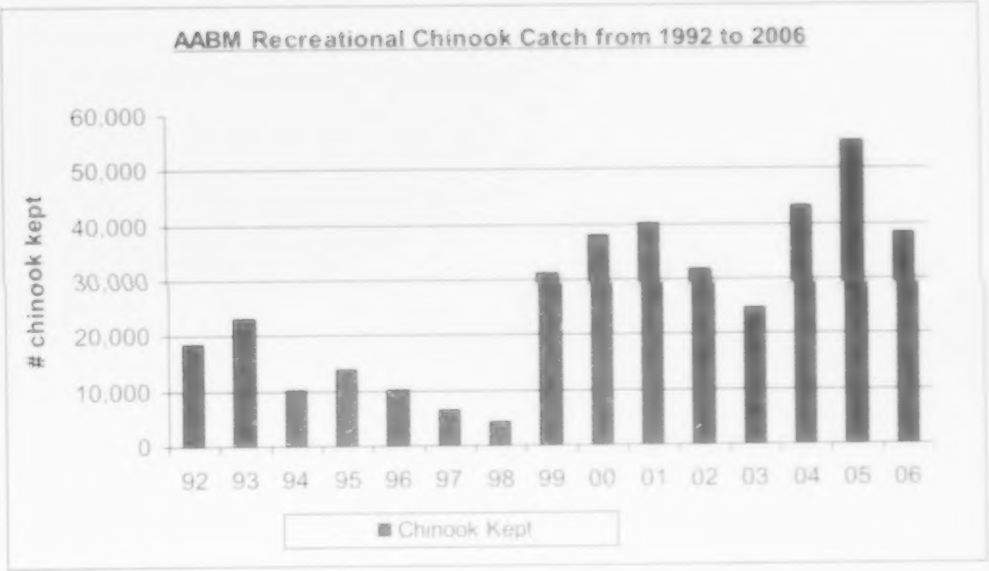
Fishing regulations in WCVI recreational AABM areas required the use of barbless hooks, with a minimum size limit of 45 cm FL. For the AABM recreational fishery the Chinook daily bag limit was two Chinook. Since the WCVI Chinook stocks of concern are assumed to migrate along near shore areas, additional conservation measures were not imposed within the WCVI AABM areas.

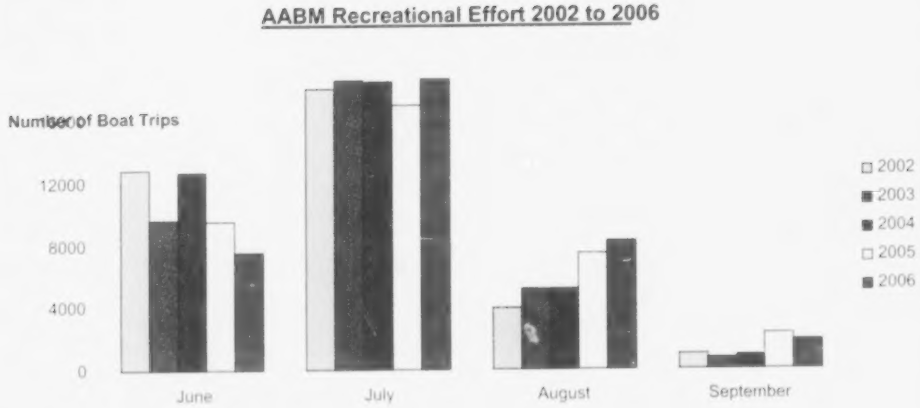
2006 AABM Chinook recreational catch by statistical area.

Statistical Area	Catch
21/121	2,449
23/123	19,530
24/124	3,713
25/125	2,089
26/126	5,272
27/127	4,852
TOTAL	**37,905**

The estimated 2006 AABM recreational catch was 37,905 Chinook. Included in the above table is lodge catch of approximately 300 Chinook for the April / May period. In addition, a recreational winter fishery occurs in Barkley Sound, but is very small due to weather conditions, smaller fish and lower CPUE than observed in the summer or peak season. Also included above is an additional 1,000 Chinook estimated to have been caught between October and May by non guided local anglers. The 1,000 Chinook is an estimate, based on personal communications with local anglers. This additional 1,300 Chinook is added into the AABM total for this report.

There was a 31% reduction in the AABM recreational Chinook catch in 2006 relative to 2005. This decrease was not due to a reduction in effort, as the estimated 2006 AABM recreational effort was approximately 36,157 boat trips, a 3% increase in effort over the 2005 fishing season.





First Nations Fisheries

The 2006 First Nations AABM Chinook catch was assumed to be 5,000, as the fishery is not monitored directly.

Commercial

In 2006, fisheries continued to be shaped by conservation concerns for early spring-run upper Fraser River Chinook, upper Fraser River coho, which includes Thompson River coho, and WCVI origin Chinook, as well as Lower Georgia Strait (LGS) Chinook. To protect the early spring-runs of Fraser Chinook, the WCVI troll fishery was closed south of Estevan Point (areas 123 and 124) between mid-March and mid-April. This closure also afforded protection to LGS Chinook. Further measures were also taken in May to protect LGS Chinook. The May fishing period was constrained by time or harvest limits (5 days or 10,000 Chinook, whichever occurred first). The catch for May 2006 was 7,078 Chinook compared to the 26, 660 in May, 2005. The April and May management actions with respect to LGS Chinook were based on the degree of presence of LGS coded-wire tags (CWTs) by time and area within the WCVI. To protect local WCVI Chinook stocks, September fisheries were conducted 5 nautical miles seaward of the surfline. To protect Upper Fraser coho, coho non-retention remained in effect for the spring/summer period. Also, coho encounter rates were monitored, and commercial troll fisheries were not opened from late June until late August.

Selective fishing practices were mandatory, including single barbless hooks and the use of "revival tanks" for resuscitating coho salmon prior to release. Size limits for commercial troll remained unchanged for 2005/2006 at 55 cm FL.

Since 1999, a major objective for the management of the WCVI troll fishery has been to distribute the catch throughout the fall-winter-spring-summer periods.

WCVI troll fisheries during the 2005/2006 troll period.

Opening Periods	Areas Open	Area Predominately Fished	Chinook Kept	Chinook Released	Coho Released	Marked Coho Kept
Oct 3-11/05	123-127	123	12,198	1,032	1,272	0
Nov 7-8/05	123-127	123	2,156	541	27	0
Dec 5-8/05	23/123-27/127	123	1,689	172	1	0
Jan 9-21/06	23/123-27/127	126	1,468	131	32	0
Feb 8-11/06	23/123-27/127	126	5,154	523	13	0
Mar 10-13, 16-31/06	23-27, 125-127	126	7,883	294	0	0
Apr 1-15/06	25-26, 125-127,	126	7,725	204	1	0
Apr 16-19/06	25-26, 124-127		166	3	0	0
Apr 20-30/06	23/123-27/127	123	12,670	420	2	0
May 1-5/06	23/123-27/127	123	7,078	343	170	0
Jun 9-11/06	123-127	123	411	10	150	0
Jun 15-18/06	123-127	123	16,955	1,146	3,123	0
Jun 19-22/06	125-127	127	3,441	110	1,024	0
Aug 25-31/06	125-127	125	886	10	182	0
Sep 3/06	125-127	126	2,590	193	1,113	483
Sep 7-13/06	125-127	125	9,996	974	2,504	1,382
Sep 14-16/06	123-127	123	8,765	1,026	744	403
Sep 17-30/06	125-127	126	2,747	179	201	131
AABM Total			**103,978**	**7,311**	**10,559**	**2,399**
Aug 3-4, 7-11*/06	123-127	125	0	3,886	806	24
Area G Total			**103,978**	**11,197**	**11,365**	**2,423**

* The August 3 - 4 fishery was a Fraser sockeye test fishery; and the August 7 - 11 commercial sockeye fishery was non-retention for Chinook salmon.

Southern BC Chinook ISBM

Southern BC individual stock based managed (ISBM) fisheries include all fisheries in Johnstone Strait, Strait of Georgia, Juan de Fuca, Fraser River, and the WCVI (excluding AABM fisheries). These fisheries are managed to harvest rate limits on individual stocks. In addition to PST obligations, Canada implements management actions as required to ensure conservation of Canadian origin stocks and meet domestic allocation requirements. Measures were taken in 2006 to protect WCVI, LGS and early spring-run Fraser River Chinook stocks.

To protect WCVI-origin Chinook, the harvest was restricted to a maximum Canadian exploitation rate of 10%. Most Southern BC commercial fisheries were regulated to some degree to minimize their impacts on WCVI natural Chinook. However, Robertson Creek hatchery-origin Chinook were harvested in the terminal area of Alberni Inlet by First Nations, recreational and commercial net fisheries.

LGS Chinook returns have been poor in recent years, requiring increased measures in 2006 to further reduce harvest impacts. Recreational non-retention areas were implemented in the Gulf Islands, near Cape Mudge and near Powell River to reduce impacts at critical times and in key areas. Commercial retention of Chinook was not permitted in seine and all inside (Area H) troll fisheries. Commercial gill nets in ocean fisheries were again permitted to retain incidental dead Chinook, but required to release those that were alive.

In addition to the above measures, further area and time closures were implemented to protect returning upper Fraser Chinook stocks during recreational and commercial fisheries. Catch monitoring included requirements for daily catch reporting, mandatory logbooks, hailing catches on a regular basis, and independent on-board observers on vessels when requested.

Preliminary Chinook catch estimates of the recreational, First Nation, and commercial ISBM catch (includes test fishing) and releases for 2006 for Johnstone Strait, Strait of Georgia, Fraser River, Strait of Juan de Fuca, and WCVI.

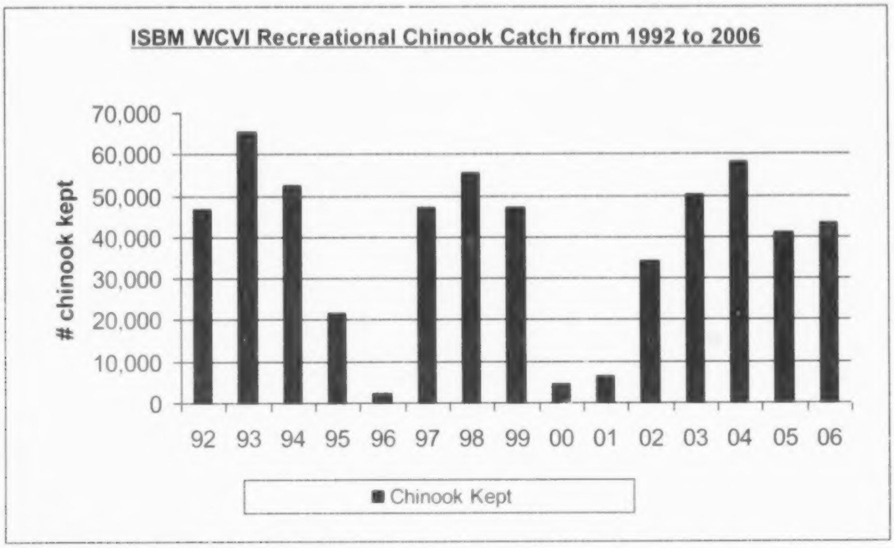
	Catch	Release
ISBM Recreational	120,284	27,634
ISBM First Nations	50,561	333
ISBM Commercial	24,164	11,152
Total	195,009	39,119

Recreational

The WCVI ISBM Chinook recreational fishery was regulated using "over/under" limits and area/bag limit restrictions to reduce impacts on natural WCVI Chinook stocks. Over/under limits for Chinook consisted of bag limits of two Chinook per day with only one allowed to be greater than 77cm FL. The area restrictions implemented were either "closed to salmon fishing" or "closed to all fin fishing". Information on the recreational regulations in place in each area is provided below. The minimum size limit was 45 cm FL for all areas. The 2006 ISBM recreational Chinook catch for WCVI was 43,411 Chinook from an estimated effort of 42,699 boat trips. This represents a 3% increase in catch and a 3% decrease in effort relative to 2005.

WCVI ISBM estimated recreational catch by statistical area in 2006.

Statistical Area	**Survey Period**	**Chinook Kept**	**Effort (boat days)**
23	August ~ September	26,631	26,040
24	August ~ September	1,569	1,413
25	July ~ September	11,832	11,835
26	July ~ September (Based on preliminary logbook data)	2,225	1,704
27	July ~ September	1,154	1,707
	Total	**43,411**	**42,699**



Restrictions:

Area 23: Barkley Sound and Alberni Inlet: Barkley Sound had a two Chinook per day limit (one over 77cm and one under 77cm FL). Certain areas within Alberni Inlet had areas with "no fishing for fin fish" to protect stocks of concern such as Nahmint. Further toward the head of the Inlet, retention of two Chinook greater than 45cm FL was in effect.

Area 24: Clayoquot Sound: Clayoquot Chinook are a stock of concern. Near-shore areas had a two Chinook per day limit (one over 77cm and one under 77cm FL). Inshore there was retention of two Chinook smaller than 77cm FL. Terminal areas were closed to Chinook retention from August 1 until December 31.

Area 27: Quatsino Sound: near shore waters had retention of one Chinook over 77cm and one Chinook under 77cm FL, and a two-Chinook/day limit for the period July 15 to September 30. Quatsino Sound waters inside Cliffe Point were closed to Chinook retention as of August 1.

Area 26: Kyuquot Sound: Rugged Point to White Cliff Head was closed to salmon retention July 15 to October 15 Near shore areas had a one Chinook over 77cm and one Chinook under 77cm FL, two Chinook per day limit. This was in effect from July 15 to October 15.

Area 25: Nootka Sound and Esperanza Inlet: terminal areas of Conuma River at the head of Nootka Sound had a two Chinook greater than 45cm FL limit. Near shore areas and inside approach to "enhanced terminal areas" had a two Chinook per day limit (one over 77cm and one under 77cm FL). In terminal areas with "non-enhanced" Chinook stocks, a "no fin fish" closure was in place from July 15 - October 15. This closure was to reduce angling pressure on Area 25 stocks of concern as they were holding prior to entering natal streams.

First Nations Fisheries

WCVI FSC and Economic Opportunity Fisheries

An agreement was reached with the Hupacasath and Tseshaht First Nations for an economic fishery targeting Somass Chinook (Area 23). In 2006, 26,933 Chinook were harvested by the two bands in the Somass fishery (8,323 Hupacasath, 18,610 Tseshaht). The Ditidaht First Nation harvested 1,695 Chinook in Nitinat Lake (Area 22). Catches of Chinook by other WCVI First Nations are unknown, and assumed small.

Strait of Georgia FSC Fisheries

Data is still being compiled on various First Nations catches in the Strait of Georgia and catch estimates are not yet available at this time. However, such catch generally amounts to <1,000 fish.

Fraser River FSC and Economic Opportunity Fisheries

Food, Social and Ceremonial (FSC) fisheries, as well as economic opportunity fisheries took place in the Fraser River in 2006 harvesting ISBM Chinook in the both the upper (above Yale) and lower reaches (below Hope) of the Fraser River. Approximately 3,805 Chinook were harvested by First Nations in the upper river for FSC and approximately 17,928 were harvested in the lower river.

Commercial Fisheries

In 2006 several commercial fisheries targeted Chinook including gillnet and seine fisheries in Alberni Inlet, and gillnet fisheries in Tlupana Inlet.

Commercial seine fisheries occurred on September 11, 12,18, and 19th in upper Alberni Inlet targeting Somass Chinook. Ten vessel days were fished during these openings with a total Chinook catch of 2,131 pieces.

Commercial gillnet fisheries occurred on August 20, 21, and 28th and September 4, 6, 11 and 20th in upper Alberni Inlet (Area 23) targeting Somass Chinook. During these five openings, 187 vessel days were fished. The total Chinook catch was 13,331. In addition, a gillnet fishery on August 14 in Tlupana Inlet (25) targeting Tlupana Chinook. Twenty-eight vessels harvested 4,845 Chinook.

In the Fraser River, Chinook were retained in the sockeye, chum, and test (Albion, Whonnock, and Cottonwood) fisheries.

All other fisheries had a non-retention of Chinook. Chinook catch and release information from all fisheries can be found in Table 10.2.

Stock Status

Upper Fraser Chinook

To date, only preliminary estimates are available as data are not yet validated, and intensive population estimates have yet to be analyzed. All early spring Chinook returns were poor to very poor. Spius and Coldwater had less than 500 spawners, while upper Chilcotin had critically low returns of under 200 spawners. Most escapements for the upper river and later lower Thompson spring populations were well below their brood escapements (i.e. Nicola R. ~ 4,000 spawners from a brood of approximately 11,500), however some stocks did return at close to or above brood year levels. Spawning and counting conditions were good, although arrival times were delayed.

Summer Chinook returns were patchy, and generally below brood escapements for the stream-type stocks (Chilko ~5000 and Quesnel ~2500), although Nechako was strong (~7,000). In contrast, the late South Thompson ocean-type aggregate was extremely strong. South Thompson had a record escapement of just over 100,000; and Lower Shuswap, Lower Adams and Middle Shuswap all met or exceeded their brood year escapements (~28,000, ~8,000 and ~4500, respectively).

Lower Fraser Chinook

The Lower Fraser Area (LFA) can be divided into four sub-areas: lower Fraser River, Howe Sound/Squamish River, Burrard Inlet and Boundary Bay. Chinook returning to some of these sub-areas within the LFA are part of larger assessment units under the jurisdiction of other Areas (e.g. Howe Sound/Squamish River Chinook are included in the larger lower Strait of Georgia Chinook aggregate that is managed out of South Coast Area). Chinook status in these larger assessment units are reported elsewhere in this document.

Lower Fraser River:

Spring-run: In 2006, preliminary estimates of adult chinook escapement by visual surveys of the escapement to the upper Pitt and Big Silver Rivers are 220 and 260, respectively. These escapements are "average" for these systems (2002-2005 average: 250 and 210, respectively).

As in previous years, an AFS funded project with Lil'wat Nation contributed significantly to assessment of this stock aggregate by conducting studies on the escapement to the Birkenhead River. The preliminary estimate of the 2006 Chinook escapement to the Birkenhead River is 1,250. This estimate, along with the 2005 estimate of 1,491, is approximately 3 times greater than the previous ten year average (1995-2004 average: 430).

An AFS funded project with Douglas Band conducted visual surveys of the Sloquet River escapement in 2006; preliminary escapement estimate is 120 adults. This is slightly lower than the previous four year average of 140. Current assessments continue to indicate low abundance in 2006 for this stock aggregate and as a result, stock status for LFA spring-run Chinook continues to be low.

Summer-run: Summer-run Chinook in the lower Fraser River do not have a reliable time series of escapement information. Maria Slough and hatchery-run populations of transplanted stocks in the Chilliwack and Chehalis Rivers are part of this stock group. Preliminary estimates of Chinook escapement to Maria Slough are 310 adults and 110 jacks. These estimates continue the downward escapement trend exhibited by this population since it was first assessed in 2002 at 1,000 adult Chinook. In addition, an extremely dry Sep-Oct resulted in traditional spawning site access difficulties and higher than normal pre-spawn mortality. This will negatively affect future returns of this broodyear. Limited information is obtained from other data sources (e.g. for Chilliwack and Chehalis summer-run returns). Overall, existing information indicates low abundance in 2006 and a continued low stock status for lower Fraser River summer-run Chinook.

Fall-run: Annual lower Fraser River fall-run Chinook stock group escapements are, on average, large (>100,000). The major contributor and principal focus of assessment of this stock group are Chinook returning to the Harrison River. Harrison River transplants to the Chilliwack and, to a lesser extent, Stave Rivers can also contribute significantly to the overall escapement of this stock group, but this contribution is primarily driven by the number of hatchery releases.

Currently, only the 2006 Stave River assessment conducted by OHEB is complete. Hatchery staff use broodstock capture effort to approximate escapement. The preliminary estimate of Chinook escapement to the Stave is ~1,500. This is greater than the previous 4 year average of ~1,000.

Both the Harrison and Chilliwack River escapement assessments ran into the middle of December. The pre-season forecast of escapement to the Harrison and Chilliwack rivers was 64,800 and 52,900 respectively. Extreme rain events have significantly raised water levels in these systems making in-season assessments problematic. However, preliminary assessment of the Chilliwack recreational fishery shows an increase in total catch (harvested & released) even with a decrease in total angler effort. Returns (i.e. swim-ins) to the Chilliwack Hatchery are larger than normal, although this could be related to the significantly higher water levels allowing greater access to the hatchery for Chinook. As a result, until the escapement assessments are complete, the 2006 abundance and status of this stock group is not known.

Howe Sound/Squamish River:

This sub-area's Chinook escapement is dominated by summer-run returns to the Squamish River. The Tenderfoot Hatchery's brood stock collection program (in Howe Sound) and a Squamish Nation AFS funded Chinook assessment project on the Squamish River are historical contributors to our knowledge of Chinook salmon abundance in this sub-area. Recently, intensive Chinook assessment projects have been conducted in the Cheakamus River watershed (a large tributary to the lower reaches of the Squamish River). This initiative is in response to the August 2005 Canadian National train derailment that resulted in caustic soda (sodium hydroxide) being spilled into the Cheakamus River. Data from these assessments is currently unavailable.

Difficulty lies in determining whether the current suite of projects provides an accurate index of escapement for this sub-area. As a result, determination of a stock status for Chinook from this sub-area remains a challenge. Current year Squamish Nation AFS data indicates low abundance relative to previous years. These 2006 results continue a declining trend seen in recent Chinook spawner counts to the Squamish watershed. Tenderfoot Hatchery collects broodstock from Howe Sound; however, this data is not collected for stock assessment proposes and is therefore difficult to interpret. Chinook returning to this sub-area are deemed to be part of the Southern Mainland Chinook group and included in the larger Lower Strait of Georgia Chinook aggregate. Information pertaining to this larger aggregate is provided elsewhere in this document.

Burrard Inlet:

Capilano Hatchery and a small FN AFS funded assessment project are contributors to our knowledge of Chinook salmon stock abundance and status in this sub-area. Although the Indian River may have supported moderate sized runs of Chinook salmon in the past, it is currently thought the numbers of natural Chinook escaping to this sub-area remains extremely small. Conversely, significant numbers of Capilano Hatchery fall-run Chinook releases return to the Capilano River and surrounding area. These annual releases are predominately from stock of Harrison River origin (via Chilliwack Hatchery). As a result of the extremely limited natural Chinook salmon production from this sub-area, there are no intensive Chinook assessment projects currently being conducted by LFA StA. Returns to Capilano Hatchery (i.e. swim-ins) are greatly affected by water level in the river. Early November rains allowed fall-run Chinook access to the hatchery; swim-in counts at the hatchery (~740) are above the five-year average but below the numbers seen in the previous two years. Current year AFS data for the Indian River is unavailable at present.

Boundary Bay:

Community-run Salmonid Enhancement Program (SEP) projects contribute significantly to fall-run Chinook returns to this sub-area. Limited core assessments have been conducted by LFA StA staff in the past; however, none were conducted in 2006. Current year SEP data is unavailable at present. Chinook returning to this sub-area are thought to be closely related to the Puget Sound Chinook aggregate and are influenced by USA hatchery programs conducted in the southern most watersheds of the Georgia Basin and the Strait of Juan de Fuca

Strait of Georgia Chinook

Spring/Summer Stocks:

Of the three early runs in Georgia Strait, assessment data are available for Puntledge and Nanaimo; the Cowichan summer run still exists but it is small and quantitative data is not available for that stock. Efforts to recover Puntledge summers to viable levels have resulted in improved returns to the river since 1999. The 2006 escapement was just under 1000 adults, which is down from the record high in 2005 of approximately 2,500 adults, but substantially higher than escapements recorded in the previous decades. Of concern is the exploitation rate which climbed sharply from a low of approximately 30% in 2001 to 55-60% in 2003-2004. Nanaimo spring and summer Chinook abundances are poorly known but appear to be stable at a much lower level than seen in the 1970's. The low abundance of this stock and the summer run of Cowichan Chinook are threats to their viability.

Fall Stocks:

Total returns to Vancouver Island streams north of Nanaimo, virtually all of which are enhanced, have been stable for the last six to eight years (Puntledge and Englishman) or sixteen years (Big Qualicum and Little Qualicum). In general, all have had recent escapements that are at or above target and currently these stocks are considered abundant. On the mainland side of the northern side of the Strait of Georgia, Sliammon and Lang hatcheries have had variable and slowly increasing returns, respectively, with slight declines since 2003-2004. There are a few very small wild populations remaining in Theodosia River, Skwakwa, and Jervis Inlet, where assessment data are poor or non-existent. Typical spawner counts are less than 20. A large proportion of the Chinook stock aggregate north of Nanaimo migrates into central and northern BC and Alaska. Exploitation rates on this stock aggregate have gradually been reduced over the last 15 years, thus the stable trend in annual returns to rivers over this period suggests a reduction in marine survival.

South of Nanaimo, returns to the Nanaimo River have also been generally stable since 1995 at slightly higher levels than those recorded back to 1975. The area of most concern is further south, where Chinook stocks returning to the Chemainus, Cowichan, and Goldstream Rivers have experienced continued declines. Unlike the central and northern Strait stocks, these southern populations rear largely within Georgia Strait, with a small but possibly increasing proportion rearing off the west coast of Vancouver Island. In particular, Cowichan River Chinook (an indicator stock) has been in decline since 1995-1996. The naturally spawning adult escapement is currently at a record low, and is inadequate to maintain the stock size at current survival rates. The status of this population has been downgraded to stock of concern.

Exploitation rates on Cowichan Chinook were historically high (averaging 80-90%), declined to a low of 34% on the 1995 brood year, and then have steadily increased to 75% on the 2000 and 2001 brood years. Although various harvest restrictions have been put into effect over the last 20 years to reduce exploitation on Strait of Georgia Chinook, additional conservation measures introduced in 2005 have dramatically reduced the harvest of Cowichan Chinook by the Strait of Georgia recreational and WCVI troll fisheries. First Nations harvest of Cowichan Chinook have recently been substantially reduced. In the short term, the outlook for Cowichan Chinook is further diminished by the total mortality of the 2004 hatchery brood (3 year age class in 2007) at the Cowichan River Hatchery. The declining returns to various southern Georgia Strait rivers are attributed to high exploitation rates, a drastic decline in marine survival, and in some cases, freshwater habitat issues.

West Coast Vancouver Island Chinook

Escapements to most natural Chinook systems increased slightly from 2005 levels but are still lower than the previous three years, particularly in some areas of concern such as Kyuquot and Clayoquot Sound and the Nahmint stock in Area 23. The return of three and four year old fish was strong in 2006. Returns in 2007 are expected to be good based on anticipated strong returns of four and five year old fish. It appears that natural WCVI Chinook stocks are still limited by brood escapement in some years.

Chinook escapements to hatchery or enhanced systems also increased from 2005 levels. The terminal return for Stamp River/Robertson Creek Hatchery was approximately 20 % above pre-season forecast levels. The return was slightly above average levels and supported relatively large terminal fishing opportunities. Escapement to the Somass system was estimated at approximately 53,000 adults, which is well above the 2006 escapement target. Similar to Robertson Creek, Chinook returns to Conuma and Nitinat hatcheries were up from levels observed in 2005, and terminal fisheries on these stocks were also supported.

Johnstone Strait/Mainland Inlet Chinook

Currently only 2 systems are monitored in Areas 12 and 13 with some level of consistency. The Nimpkish River is monitored using standardized swim surveys and stream walks by the hatchery staff. The Quinsam hatchery staff conducts an intensive mark-recapture program to estimate escapement on the Quinsam/Campbell system. Other systems are covered using intermittent visual surveys.

Nimpkish:

Preliminary observations from the swim surveys indicate a reduction in abundance of Chinook to the Nimpkish Watershed in relation to past years. At this time no brood stock has been taken by the hatchery.

Quinsam/Campbell:

The Dead-pitch program is ongoing. Fish appeared late which has pushed the duration of the program later than normal. Abundance estimates are not available at this time; however, preliminary indications suggest a larger total return than last year and higher than the historic average. In comparison to past years, this year has demonstrated a significant increase in the distribution of spawners into the Campbell River. Efforts by the hatchery over the years have been focused on re-establishing the Chinook return to the Campbell River. The 2006 return may prove to be the first evidence that this work was successful. The brood stock goal of 1,609 adults (801 males + 808 females) was attained.

Southern BC Coho

The forecast of 2006 abundance indicated that the status of coho in the Upper Fraser River system remained critically low. The lower Fraser, Georgia Basin (east and west), and the Johnstone Strait coho management units were all forecast to be of low status. The forecast for WCVI coho indicated a poor return but there was no suggestion of a declining trend and their status was considered to be moderate.

In 2006, interior Fraser coho were a primary concern in implementing fisheries. Under the Abundance Based Management provisions in the Pacific Salmon Treaty, the US was limited to a maximum 10% exploitation rate on interior Fraser coho. In Canada, the management objective for these coho in 2006 was to limit the total mortality to 3% across all Canadian fisheries. The total exploitation on interior Fraser coho was therefore limited to a maximum of 13%.

To ensure this limit was not exceeded in Canadian fisheries, non-retention of wild "unmarked" coho was required in many recreational and commercial fisheries operating in areas of southern BC where interior Fraser coho were known to be prevalent. Terminal areas along the WCVI and also a small portion of upper Johnstone Strait and Queen Charlotte Strait for a short time period were excluded from the requirement for wild coho non-retention (1 wild coho retention was permitted in Area 11 and upper Area 12 from June 15 to Aug 2). The only non-terminal area where coho retention was permitted was WCVI, where the Area G troll fishery retained hatchery coho in September 2006.

Post-release mortality rates were based on studies conducted in 1999-2001 and detailed in the Canadian Stock Assessment Secretariat. Research Document 99/128 (CSAS, Doc 99/128). The mortality rates for legal size coho by gear type were: Seine 25%; Gillnet North 70% and South 60%; Troll 26%; Recreational 10%.

Preliminary coho catch and release estimates of the recreational, First Nation, and commercial fisheries (including test fisheries) for 2006.

	Catch	Release
Recreational	23,309	40,284
First Nations	2,330	391
Commercial	4,807	24,595
Total	30,446	65,270

Recreational

Recreational fisheries can be categorized as occurring in mixed stock areas where specific coho stocks (such as Upper Fraser River coho) could not be avoided, and terminal areas where local stocks dominate the catch. The WCVI coho fisheries had a boundary in place distinguishing coho catch in the mixed-stock fishery (outside the coho boundary) and catch in the terminal area (inside the coho boundary). The table below outlines the areas in Southern BC where these mixed stock fisheries occurred and the regulations pertaining to them.

Hatchery mark selective coho fisheries in Southern BC.

Mixed stock fishing area	Daily Limit (marked or unmarked)	Size Limit	coho Season
WCVI Outside coho Boundary 21-27, 121-127	2 marked	30 cm.	Jun 1 – Aug 31
WCVI Outside coho Boundary 21-27, 121-127	4 marked	30 cm.	Sept 1 – Dec 31
WCVI Inside coho Boundary 21-27	2 marked or unmarked	30 cm.	Jun 1 – Aug 31
WCVI Inside coho Boundary 21-27	4, only 2 wild	30 cm.	Sept 1 – Dec 31
Juan de Fuca: areas 19-20	2 marked	30 cm.	Jun 1 – Sept 30
Juan de Fuca: areas 19-20	4, 1 may unmarked	30 cm.	Oct 1- Dec 31
Strait of Georgia: areas 13-19, 28, portions of 29, excluding some terminal areas.	2 marked	30 cm.	Jun 1 – Dec 31
Johnstone Strait – Queen Charlotte Strait: most areas	2 marked	30 cm.	Jun 1 – Dec 31

2006 catch and release for the recreational coho fishery in Southern BC.

Area	coho Kept	coho Released	Effort (Boat Trips)
WCVI – Outside coho Boundary	13,333	26,503	NA
WCVI – Inside coho Boundary	3,501	2,491	NA
Strait of Georgia	1,247	3,438	4,685
Fraser River	2289	5598	NA
Juan de Fuca	2,945	5,446	8,394
Johnstone Strait	2,283	2,314	4,598
TOTAL	**23,309**	**40,275**	**17,677**

Mixed stock areas

Release of wild "unmarked" coho was required in all recreational fisheries operating in times and areas of southern BC where interior Fraser River coho were known to be prevalent, including the mixed stock areas of the WCVI (Statistical Areas 21-27, 121-127), Strait of Juan de Fuca (Statistical Areas 19-20), Strait of Georgia (Areas 14-19, 28, 29), and the majority of Johnstone Strait and Queen Charlotte Strait (Statistical Areas 11, 12 and 13). Some wild "unmarked" retention was provided in Area 11, 12 and 13 with catch limit, time and area constraints (Details in Pacific Region Integrated Fisheries Management Plan, Salmon Southern B.C. 2006). In addition, the use of barbless hooks was mandatory in all these areas

In 2006, hatchery mark selective fisheries (MSF) remained the same as 2005. Fisheries in southern BC allowed hatchery coho retention in MSF starting June 1 in most areas.

West Coast Vancouver Island:

Recreational catch monitoring along WCVI began June 1, which was when MSF for coho opened in most areas. Opportunities in offshore areas 121 to 126 and outside coho boundaries in areas 21 to 26 caught an estimated 8,148 hatchery coho, 4,253 wild coho and 932 coho "not checked for marks" during this four month period in 2006. The total coho catch outside-the-boundary from the WCVI mixed stock area was 13,333.

Strait of Georgia (including Juan de Fuca Strait and Johnstone Strait):

Recreational catch monitoring occurs year-round in portions of the Strait of Georgia but operates mainly from May-October. Coho catch, releases, and mark rates are derived from three main sources; creel survey, guide logbook and test fishing information. The total coho catch in Strait of Georgia mixed stock and terminal areas was- Georgia Strait 1,247, Juan de Fuca Strait-2,945, Johnstone Strait-2,283.

Terminal Fishing Areas

West Coast Vancouver Island:

In WCVI terminal fishing areas retention of 2 wild "unmarked" coho was permitted in portions of Port San Juan (Area 20), Barkley Sound (Area 23), Clayoquot Sound (Area 24), Nootka Sound and Esperenza Inlet (Area 25), and Quatsino Sound (Area 27) after June 01. In Alberni Inlet, retention of 4 wild "unmarked" coho was permitted after August 1. In most areas these regulations were in effect until December 31. Rivers with large hatcheries including the Stamp/Somass, Nitinat, and Conuma, recreational retention of wild and hatchery coho in terminal areas was permitted September 3 through December 31. The total WCVI inside coho boundary area catch was 3,501.

Strait of Georgia:

Terminal closures were in effect in river mouths or local bays in some areas in the Strait of Georgia in 2006. River mouth / local bay closures were lifted in some areas where impacts on other species or stocks were not a concern. In some of these areas special management actions, including changes in daily bag limits or size limits, were implemented depending on the situation.

Non-Tidal Recreational Fisheries

Strait of Georgia:

During 2006 there were non-tidal openings throughout the Strait of Georgia. Areas which have been surveyed in previous years, but were not monitored in 2006 include: Big Qualicum River (stat area 14-4); Puntledge River (14-14) and Chapman Creek (Area 29-1). Catch estimates are not available at this time.

Johnstone Strait:

In Johnstone Strait, non-tidal openings for coho were initially available on the Campbell/Quinsam River from October 1st to December 31st where 1 hatchery marked coho was permitted in addition to jacks.

Low water conditions persisted until late October in small to medium rivers in southern BC requiring fisheries managers to place fin fish closures in many systems to protect returning spawning salmon.

West Coast Vancouver Island:

During 2006 there was a non-tidal opening for the Somass/Stamp Rivers from September 1 to December 31, 2006. The daily limit was four salmon per day. Anglers were allowed to retain two coho (marked or unmarked) and two Chinook (of which only one may be greater than 77 cm in length). The Somass/Stamp Rivers were not monitored by creel survey during 2006.

First Nations

Somass Economic Opportunity Fishery

An agreement was reached with the Hupacasath and Tseshaht First Nations for an economic fishery targeting Somass Chinook. Incidentally caught coho could be retained and also sold. Four hundred coho were reported to be caught in this fishery.

Lower Fraser

Coho catches in the Lower Fraser River are reported to be 2408 pieces by mid-November 2006. These fisheries are still ongoing however it is unlikely that very many more will be caught. This catch to date is significantly lower than normal.

Cowichan

Cowichan Tribes traditionally have a dip-net fishery on the Cowichan River. 2006 catch data are not yet available. An assessment of the escapement is currently underway by the Native Guardian group of Cowichan Tribes.

Nanaimo

FSC fisheries are not directly monitored in-season but are reported to DFO post season. There is a small hook and line and net fishery that takes place between mid August and late November. Catch totals are generally less than 1000. DFO conducts bio-sampling on landed coho and to date 45 coho adults have been sampled.

Qualicum

The Qualicum First Nation harvested 366 jack coho in 2006.

Commercial Fisheries

In 2006, Southern BC commercial fisheries were generally regulated so that impacts on coho, and especially Upper Thompson coho stocks, were minimized. Terminal opportunities to retain coho by-catch during directed Chinook fisheries were available to Area B seines and Area D gillnets in Alberni Inlet and Tlupana Inlet.

Area B commercial seine fisheries occurred on September 11, 12,18, and 19th for a total of 10 vessel days in upper Alberni Inlet targeting Somass Chinook. The total coho by-catch was 807.

Area D commercial gillnet fisheries occurred on August 20, 21, and 28th and September 4, 6, 11 and 20th in upper Alberni Inlet (23) targeting Somass Chinook and September 26, 27, October 3, 4, 10,11, 17, 18, 24, and 25 in an 8 vessel exploratory fishery targeting Barkley Sound Chum. Fishers were allowed to retain incidentally caught coho salmon. The total coho catch was 117.

Coho retention was permitted in the Area D Nootka chum gillnet fishery and the Tlupana Chinook fishery. The total catch in these fisheries was 1,259 coho.

Coho retention was permitted in the gillnet test fisheries and 172 coho were kept in Johnstone Strait in the sockeye fishery, and 12 coho were kept in the Fraser River sockeye and chum fisheries.

Area G troll fisheries were permitted to retain incidentally caught hatchery-marked coho in the September-November AABM fishery. The total retained was 2,399.

Stock Status

Upper Fraser Coho Stocks

While field programs to estimate escapements are currently underway, early returns to Thompson systems (Louis, Lemieux, Eagle, Coldwater) appear very low, and possibly the lowest observed. Preliminary data indicate returns to the entire interior Fraser may range between 7,500 and 9,000, however it is too early to accurately determine abundance. Near final estimates will not be available until March; and data entry and verification are incomplete. Again, at this time, early spawner levels appear to be among the poorest observed.

Lower Fraser Coho Stocks

The Lower Fraser Area (LFA) can be divided into four sub-areas: lower Fraser River; Howe Sound/Squamish River; Burrard Inlet; and Boundary Bay.

Lower Fraser River:

The PST indicator stock for lower Fraser River wild coho is the Salmon River (Langley), which is a low gradient urban stream. Historically, intensive combinations of fence/trap and mark-recapture techniques were used to assess both smolt production and adult escapement since 1986. However, assessments were limited to smolt assessment in 2005 and adult assessment in 2006.

Adult coho returns to the Salmon River in 2006 are from the brood of the 2003 escapement. Juveniles (smolts) emigrated from the Salmon River system in the spring of 2005. Based on a fence census, an estimated 58,800 smolts emigrated from the Salmon River (previous 4-year average was 57,500). Additional information on this assessment was reported in last year's post season review. Caution is recommended when using Salmon River smolt abundance data as a predictor of subsequent adult returns. Extreme rain events significantly raised water levels in this system making in-season spawning escapement assessments problematic. To mid-November, only 390 coho were counted through the fence (210 adults and 180 jacks). The previous five year average escapement for the Salmon River is 5,100 adult coho. Historic patterns of spawning ground abundance and run-timing indicate the 2006 escapement may be about 1,000 to 2,000 fish.

A complementary hatchery coho indicator stock is provided by the Inch Creek Hatchery. Adult escapement is assessed annually and marine survival and exploitation rates are calculated.

The 2006 Marine Survival Forecast of Southern BC coho (DFO, 2006) predicts extremely low marine survivals and abundances that are close to those observed in 2005. Inch Creek survival for 2006 returns is forecast at 1.5% (50% CI - 0.9% to 2.6%). Hatchery returns contribute significantly to Inch Creek escapement. Based on 2003 broodyear releases and the current survival forecast, an escapement in the range of 1,200 to 3,600 adults would be expected. Currently, coho adults have only started to enter the hatchery in any significant numbers (~450 reported to mid November). Spawning ground arrival-timing suggests a 2006 escapement in the 2,500 to 3,500 range.

The mark-recapture project on adult coho returning to the upper Pitt River was not conducted in 2005-2006. Previously this project provided a quantitative assessment of a significantly large "up-land" lower Fraser River stock.

Adult coho visual surveys are being conducted by LFA staff on a number of systems within the lower Fraser River sub-area, although the number of systems assessed in 2006 (n=12) is approximately ½ of the number assessed in previous years (n=25 from 1999 to 2003). Extreme rain events have significantly raised water levels in most of these systems making in-season assessments problematic. Although counts to mid-November are low, it is too early to provide a quantitative assessment of these 2006 data as these projects will continue into the new-year. As a result, until the assessments are complete, the 2006 abundance and status of this stock group is not known.

Howe Sound/Squamish River:

The Tenderfoot Hatchery and an AFS funded coho assessment project are significant contributors to our knowledge of coho salmon stock status in this sub-area. Although counts to mid-November are low, it is too early to provide a quantitative assessment of the 2006 escapement as these projects will continue into the new year. As a result, until the assessments are complete, the 2006 abundance and status of this stock group is not known.

Burrard Inlet:

The Capilano Hatchery, a community-run SEP project (Seymour River Hatchery} and a small AFS funded assessment project are contributors to our knowledge of coho salmon stock status in this sub-area. Although significant returns of natural coho salmon to systems such as the Seymour and Indian Rivers are thought to be occurring, this sub-area is principally dominated by the Capilano Hatchery returns to the Capilano River. Returns to the Capilano Hatchery, to date, vary depending on run-timing: early returns (~2,100) were above average; mid returns (~4,200) were approximately 60% of average; and late returns (~780 to mid-November), are less than 10% of average. The combined return, to mid-November, for the Capilano is 7,200 coho; the previous five year average return is 16,100. It's important to note, that river water levels (both extremely low in September/October and extremely high in November) may have negatively affected returns to the hatchery and significant returns could occur in the latter half of November and well into December. As a result, until the assessments are complete, the 2006 abundance and status of this stock group is not known

Boundary Bay:

Community-run SEP projects contribute significantly to coho returns to this sub-area. Limited assessments have been conducted by LFA staff prior to 2005. Current year data are not available at present.

Overall, with LFA adult coho assessments continuing into February 2007, a determination of 2006 coho salmon stock status in the LFA is not possible at this time.

Strait of Georgia Coho Stocks

2006 forecast

The 2005 returns were considerably lower than forecast and most were below the 50% confidence intervals. Marine survival for the wild indicator at Black Creek declined to

1.4%,. Hatchery based coho stocks showed a severe decline to 0.1% - 0.5% marine survival.

The 2006 forecast models indicated a continuation of the low marine survivals. Wild coho stocks were forecast at 2.6% and hatchery stocks were forecast at 0.1% - 1.2%.

2006 Conditions

Weather conditions in the Strait of Georgia area created challenges for coho enumeration. Prior to the November storms very little rainfall had occurred and most creeks and rivers were still at summer low flow conditions which hampered freshwater entry of coho. There was one incident of a low water kill at Black Creek, the wild coho indicator located between Campbell River and Courtenay.

At the end of October the fall storms arrived in force. Creeks and rivers in the coastal areas were inundated with water and there was widespread flooding, damage to roadways, banks, and very turbid water. High water levels have continued through most of November resulting in very difficult counting conditions.

Hatcheries

Coho returned to the Puntledge River in small numbers, but individuals seemed larger than usual. The total escapement will likely be similar to last year's total of about 500.

As of November 15, 1,780 adult and 983 jack coho were enumerated at the Big Qualicum Hatchery facility. This return is below the 2500 brood stock and 2500 spawning channel targets, and far below the 10 year average (1996-2005) of 6700. Also of note is the water flow regime of Qualicum River was not affected by the extended drought conditions in Strait of Georgia streams so the coho were not prevented from entering freshwater when they arrived in the estuary.

The final count for the Lang Creek summer run coho stock was 1078 adults and 119 jacks. The adult count is slightly below the 10 year average (1996-2005) of 1270.

Prior to the storm events at the beginning of November approximately 25 coho adults were enumerated at the Goldstream River fence site. These fish were checked for the presence of a coded-wire tag and released. No coho have been retained for broodstock. Stream walks will continue through December so that a full escapement estimate can be done.

The Stamp Falls fishway preliminary count of coho adults is 11,500. Expansions for night movement and the shoulder periods have yet to be done however these will not increase the preliminary count significantly. The near term 10 year average is 63,500 adult coho.

Wild Indicators

Freshwater entry by returning coho to Black Creek was hampered by low water conditions. By November 11th the water level had risen and approximately 400 jack and 170 adult coho had been enumerated at the counting fence. The fence was inundated with high water so the panels were removed and a DIDSON unit was installed to enumerate coho moving through. Escapement work on this system is still ongoing.

The Myrtle Creek fence was maintained for all but 24 hours during the fall storm events. To date 18 coho adults have been enumerated which is half the average return over the last 6 years.

Approximately 50 coho were enumerated at the Carnation Creek fence, and about half tested positive for the presence of a coded-wire tag. This result compares well with the 2006 forecast of 31 returning tagged adult coho. The brood year count from 2003 was 232 adults.

Wild Escapements

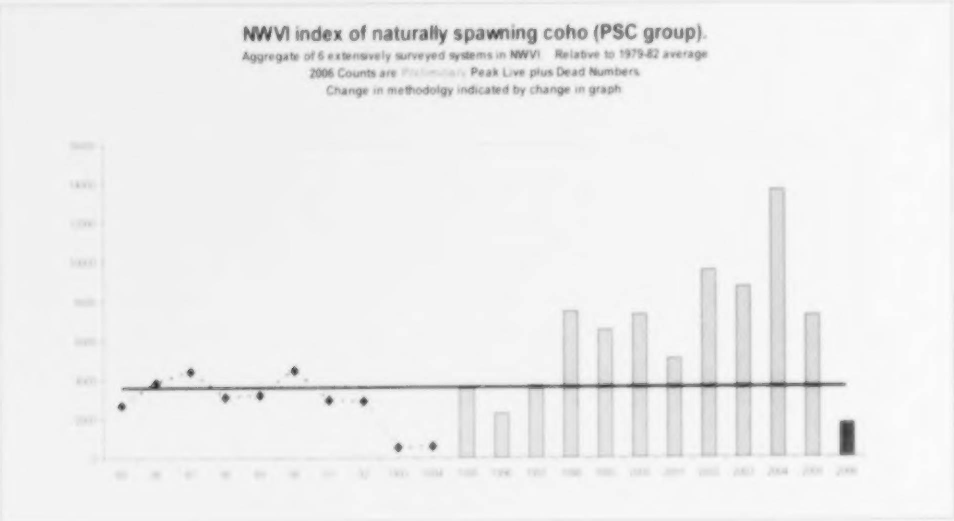
Stream enumeration is under way in a small number of systems in the Strait of Georgia. Early reports indicate very few coho have entered freshwater at this time. Enumerations have been hampered by high water and will be ongoing until late December.

Bi-weekly swim counts have been conducted on the Englishman River since early September. There have been less than 10 coho adults seen to date suggesting a severe drop in escapement from recent years.

The escapement estimate for Little Qualicum coho to mid-November is 32. Although a few more coho will be entering the system over the next few weeks, the 10 year average (1991-2001) is over 2000 adults.

West Coast Vancouver Island Coho Stocks

Coho escapement enumeration is still underway and estimates will not be final until January. Preliminary escapement information suggests escapements of wild coho in 2006 are showing further declines from 2005. These estimates will likely increase as additional data are collected, but remain below the 10 year average. The figure below shows the 2006 results to date in comparison with previous years.



Johnstone Strait and Mainland Inlet Coho Stocks

The Keogh River plays an important role as the wild coho indicator stock for the Upper Johnstone Strait Area. Smolt production in 2005 was one of the lowest on record due to an extremely dry spring. Preliminary indication from the resulting adult escapement in 2006 is that marine survival is similar to last year (~3% smolt to adult survival). Smolt production from the Keogh in 2006 was slightly lower than the long term average (~60,000).

The marine survival indicator for Area 13 is the Quinsam River Hatchery. Early information from Quinsam indicates significant declines in abundance over 2005.

Low water levels throughout the summer and fall have resulted in significant delay to in-river migration for most coho systems within Johnstone Strait. Current escapement reports are showing a wide variation in returns from extremely poor to higher than brood returns. At this time it is premature to provide an indication of stock status.

Southern Chum

Johnstone Strait

This year constituted the fifth year of the exploitation rate strategy for Study Area Chum in Johnstone Strait. In order to ensure sufficient escapement levels while providing more stabilization of the fisheries a 20% fixed exploitation rate strategy was implemented independent of run size which started in 2002. A preseason planning model was utilized to layout the fishing plan based on expectation of effort and exploitation levels by gear group. Fisheries were conducted based on allocation of the 20% across the user groups of which 15% was allocated to the commercial gear sectors. The additional 5% was set aside to satisfy FSC, recreational, test fish and provide a buffer to the commercial exploitation. Past tagging studies conducted in 2000 and 2001 helped in the development of this strategy in assessing the exploitation rate and migration timing of chum stocks in the Johnstone Strait.

In-season information is still being collected and analyzed in regards to the final harvest rate estimation.

First Nations

The preliminary estimated catch by First Nations in the Johnstone Strait area is estimated at 8,000 chum.

Marine Sport

The majority of recreational effort directed at chum salmon occurs in the Statistical Area 13 portion of Johnstone Strait. The total catch estimate for the recreational fleet in Area 13 for 2006 was 10,600 chum, of which 64% was harvested in the month of October. The 2006 catch is similar to 2005 and represents about half of what was landed in 2004 at similar levels of effort.

The recreational catch in the Statistical Area 12 portion of Johnstone Strait was estimated at 170 chum. This estimate represents catch during the months of July and August from a directed creel survey and is likely an underestimate, however recreational effort directed at chum during the month of October is typically low.

Non-tidal sport

There were no directed chum fisheries in non-tidal waters in the Johnstone Strait area.

Commercial

Johnstone Strait study area chum fisheries for commercial seine, gillnet and troll were conducted between October 3rd and October 23rd. Fisheries conducted are as follows:

Area B Seine:

Two competitive seine fishery openings for all vessels were conducted, the first on Oct 2nd (12 hrs) and the second on Oct 23rd (10 hrs) for a total catch of 595,700 chum. The demonstration seine fishery that was conducted in 2005 was not repeated this year. DFO and the Area B Harvest Committee could not agree on what model to use to determine the "per vessel allocation" for the demonstration fishery.

Area D Gillnet:

Three gillnet fishery openings (approximately 7 fishing days) were conducted between October 5th and October 19th, estimated total catch – 137,100 chum.

Area H Troll:

Three troll fishery openings (9 fishing days) were conducted between Oct 3rd and Oct 17th, estimated total catch – 67,600 chum.

The total commercial fishery study area chum catch from Johnstone Strait was estimated at 800,400 pieces.

Johnstone Strait (Areas 12 and 13)			
Fishery Date	Gear type	Effort	Catch
Oct 2 (12 hrs)	B - SN	133	422,700
Oct 3 to 6 (4 days)	H - TR	66	25,600
Oct 5 to 7 (41 hrs)	D - GN	122	44,000
Oct 10 to 12 (41 hrs)	D - GN	119	40,900
Oct 11 to 13 (3 days)	H - TR	65	25,300
Oct 16 to 17 (2 days)	H - TR	41	16,700
Oct 16 to 19 (63 hrs)	D - GN	116	52,200
Oct 23 (10 hrs)	B - SN	114	173,000

	Total Catch	% of catch	J.S. Allocation Plan	
Area B	595,700	74.4	77% (82% of net share)	
Area D	137,100	17.1	17% (18% of net share)	
Area H	67,600	8.4	6% (of total commercial)	
Total Catch:	800,400			

Summer chum by-catch in the Fraser directed sockeye fisheries that occurred in August were estimated at 23,000 pieces. These catches are not included in the above tables.

There was no directed terminal harvest of Johnstone Strait summer chum. It is still too early to determine if there will be opportunities for directed harvest of fall chum destined for the Nimpkish River.

Stock Status

Mixed Stocks

The preseason expectation for Study Area Chums suggested average to above average returns to the area. The main component to the return was expected to be the Fraser River stocks, although both Fraser and Non-Fraser components of the return were originating from average brood returns in 2002.

Unlike past years, there were no test fisheries sanctioned to assess chum timing and relative abundance in Johnstone Straits. Preliminary information on escapements and catch to date suggest continued stabilization of chum returns for the Inside Study Area stocks. In-season information is still being collected and analyzed in regards to total stock size.

Terminal Returns

Summer run chum escapements the mainland inlets of statistical Area 12 demonstrated significant improvements in relation to past years. Three of the more consistently monitored systems (Ahnuhati, Ahta and Viner) had returns stronger than their main brood year in 2002. There appears to be an increasing trend of abundance for these summer chum stocks in that area. In Statistical Area 13 the other main summer run chum group in Bute Inlet, Orford River, demonstrated a slight reduction in return over the brood return in 2001 (dominated by 5 year old fish), but still well below the escapement target.

At this point it is still too early to assess the status of fall run chum in the Johnstone Strait Area. Preliminary information is that returns are above average for a variety of systems within the area. Heavy November rains have made it extremely difficult at this point to assess the fall chum return to the Nimpkish River.

Fraser River Chum

The escapement objective for Fraser River chum is 800,000. Required protection for co-migrating stocks of concern delays fisheries from the peak of the run (mid-October) to the end of the run (late October – early November) although the return has been above the escapement objective for a number of years. Small numbers of short fishery openings have prevented adverse impacts on local chum populations.

Fisheries

Fraser River chum are harvested in Johnstone Strait as well as in the Fraser River.

Chum fisheries are severely limited by conservation concerns for Interior Fraser (including Thompson River) coho and Interior Fraser steelhead. The lower Fraser River was closed from September 6 – October 6 below Mission (September 7 – October 9 between Mission and Hope) to all but selective gear to protect Interior Fraser coho. Commercial gill net fisheries are further restricted to the end of October to protect Interior Fraser steelhead.

First Nations

First Nations food, social and ceremonial (FSC) fisheries commenced October 7 (below Mission) following the end (97.5%) of the Interior Fraser coho migration. The estimated catch from all fisheries (FSC and economic opportunity) below Sawmill Creek to November 9th is 129,247. The FSC catch was 14,539 and the economic opportunity catch was 114,708 (79,642 from the mainstem Fraser River and 35,066 from within the Harrison River). ESSR harvests have not yet been reported.

Recreational

In Fraser mainstem fishery, 900 chum were kept by October 9th, and catch was not monitored directly thereafter. In the Chilliwack River, about 5,375 chum were kept between September 15th and November 15th, and recreational catches were not monitored directly outside this period.

Commercial

Chum test fishing began on September 1st and was conducted on alternate days (alternates with Chinook test fishing) until October 20th when Chinook test fishing was completed; chum test fishing then continued on a daily basis. Chum catches in the 6.75" chum test net to November 9th total 9,523.

Three Area E (commercial gill net) fisheries took place within specified portions of Area 29th on October 23rd , October 30th and November 9th with estimated catches of approximately 60,000, 80,000 and 19,500, respectively. The total Area E catch for 2006 was 159,500.

Stock Status

Total Fraser River chum run size is estimated in-season using Albion test fishing catches and a Bayesian model. A run size of 2.6 million was calculated with Albion catch data to November 9th. No other escapement estimates for the 2006 return are currently available.

While there have been substantial returns in recent years (e.g. 1998) the timing of the run appears to be truncated compared to historical run distribution. In the past, chum returned to the Fraser River and its tributaries well into December. The run is now essentially over by early November. Whether this is a result of fishing practices, habitat changes to the spawning area that were used by late returning fish (e.g. mainstem spawning areas) or some other currently unidentified factor has yet to be determined. Escapement estimates are based on enumeration of a very few large enhanced. The status of small systems and different timing groups is uncertain.

Strait of Georgia Chum

The Strait of Georgia chum fisheries consists of terminal opportunities for chums returning to their natal spawning streams. Many of the potential terminal fishing areas have enhancement facilities and/or spawning channels associated with the rivers. Terminal fishery strategies consists of monitoring and assessing stocks (escapement and returning abundances) with the objective of insuring adequate escapement and providing harvest opportunities where possible. Assessing stocks may include test fisheries (prior to 2006), commercial assessment fisheries, escapement enumeration, and over flights. In some areas where stocks receive considerable enhancement (Qualicum) or where stocks have above average productivity, limited fishing may occur prior to major escapement occurring.

The Qualicum system, with three major enhancement facilities (Big Qualicum, Little Qualicum and Puntledge hatcheries), has a specific harvest strategy, implemented since 1981. This strategy consists of limited early harvesting prior to escapement occurring. The early harvest total allowable catch (TAC) ceiling is 65% of the total surplus. This allows for a buffer to safeguard against an error in forecast stock abundance. This buffer is limited to 100,000 fish, with any additional surplus considered early harvest TAC. The harvesting of early (brighter) fish includes conservation considerations to minimize the bycatch of other species, and minimize the harvest of non-target passing chum stocks. Since 2002, Puntledge River stock returns have been above average resulting in terminal fisheries focusing on this slightly earlier timed stock in more terminal areas.

Recreational marine catches for chum salmon are generally small. Occasionally recreational in-river fisheries occur where surpluses or target escapements will be met. These fisheries are almost exclusively where enhancement facilities are present.

Fisheries

The terminal Strait of Georgia fisheries are managed on a stock by stock basis. Each area receives individual assessments according to the characteristics of the potential harvesting. Assessment and harvesting may begin as early as October and continue to as late as December. Information is preliminary as escapements continue to be compiled.

First Nations

Chum are harvested by First Nations for both ESSR and FSC opportunities. Catch reports are still being compiled as some fishing is occurring during the preparation of this report. The total chum reported to date is approximately 15,000 pieces.

Area 14 to 16: In the Qualicum area, as of November 15, 5,824 chum had been harvested as ESSR from Big Qualicum. Area 15 data are still being compiled. In Area 16, as of November 20th, the FSC estimate was 9,095 chum.

Area 17 to 19: Nanaimo to Goldstream Rivers. Harvest has been minimal and restricted to in-river methods. Data are currently being compiled.

Recreational

Recreational creel survey extends to the marine area Discovery Passage, (outside of Campbell River). This area was originally an extension of the Strait of Georgia creel survey and is traditionally reported with the Strait of Georgia catch. The total catch estimated by the creel survey and reported, as Strait of Georgia catch retained is 11,091. The majority of chum catch occurs in the Discovery Passage area.

Commercial

Area 14: Qualicum. Gill net openings occurred on October 10-12 and 16-19 in the Puntledge area. On October 22, the Big and Little Qualicum areas were opened for fisheries on October 22-26 and 29-31. Gill net fisheries also occurred in November in the Puntledge area on November 7-9 and 15-17. Both the Puntledge and Big Qualicum areas opened on

November 21-23. There was a total of 23 days fished with a catch of approximately 80,534 chum. The troll fishery opened until further notice on October 7 in the Puntledge area. Big and Little Qualicum areas also opened from October 22 – November 3. The troll fishery reopened on November 7 in the Puntledge area and closed on November 17. The troll fishery was open for 39 days with a catch of approximately 695 chums. Seine fisheries occurred on November 13 in the Puntledge and Big Qualicum area, from November 15-17 in the Puntledge area and in the Puntledge and Big Qualicum area on November 23-24. The seine fishery was open for 5 days with a catch of approximately 3,400.

Area 16: Jervis Inlet. No commercial fisheries occurred in Jervis Inlet as no surplus was identified. Escapement assessments are currently ongoing.

Area 17: Drought conditions hampered chum migration up-river until approximately November 3. The last assessment of the Nanaimo River occurred on November 1. Further assessments were hampered by high flows following heavy rain events that peaked on or about November 4. The escapement estimate based on combined swim surveys and overflight to November 1 was 31,150 with a target of 63,500. There were no commercial openings due to this escapement estimate in the Nanaimo River.

Area 18: As in Area 17, migration of chum into the Cowichan River was stalled due to low flows. Escapement estimates for the Cowichan River were also hampered by high flows and poor visibility. This was the first year that a DIDSON (dual-frequency identification sonar) unit was utilized to augment escapement assessments in the Cowichan River. As of November 21, escapement estimates are preliminary, but estimated to be in the range of 80,000 to 85,000 chum. The target for the Cowichan River is 110,000.

The assessment of marine areas by charter patrol and other Departmental staff did initially reveal some large schools of chum in the approach areas near Mill Bay and the west coast of Saltspring Island. However, these large bodies of fish were no longer observed after heavy rainfall on November 4 and 5.

Marine assessment continues as of November 21, 2006, and reports indicate a low abundance of chum observed in the marine area. The escapement estimates do indicate that chum are migrating into the Cowichan River, however there have been no fishable schools observed since early November.

Both the marine areas and Cowichan River will continue to be assessed. Both in-river and marine ESSR fisheries are possible, but will be subject to further assessment. Commercial fisheries are unlikely to occur due to the low abundance of fish in the approach areas.

Area 19: The preliminary Goldstream River escapement estimate is in the range of 15,000 to 20,000 chum with an escapement target of 15,000. The escapement trend in Area 19 was similar to that observed in areas 17 and 18. Migration was initially stalled due to low water levels, followed by extreme high flows following the November 4 and 5 rain events. While it appears as though Goldstream has met or exceeded its target escapement, marine assessments continue to show low abundance of chum in Saanich Inlet. As of November 21, commercial fisheries are unlikely in Areas 19 due to this low abundance. A commercial communal license was drafted for Saanich Tribes in contemplation of a small bite seine fishery in Saanich Inlet. However due low abundance the fishery will likely not proceed.

Stock Status

The returning chum stock to the Strait of Georgia for 2006 was forecasted to be average to above average. The 2002 brood year escapement was generally average, and the survival was anticipated to be above average thus providing an average to above average general forecast. However, historically, chum returns have been highly variable relative to brood year escapements. To date, returns have been slightly lower than expected, although preliminary escapements are at or just below target. First Nations fisheries were anticipated but occurred only in some terminal areas. Recreational fisheries for chum were limited due to concerns for other species. Commercial fisheries have only occurred in the Qualicum area to date. Conditions for chum migration were generally poor to average due to low flows early in the season, and high flows after November 1.

West Coast Vancouver Island Chum

The West Coast of Vancouver Island (WCVI) chum fisheries consists of terminal opportunities for chums returning to their spawning streams. The main potential terminal fishing areas (Nitinat and Nootka) have enhancement facilities associated with the rivers. Terminal fishery strategy consists of monitoring and assessing stocks (escapement and returning abundances) with the objective of insuring adequate escapement and providing harvest opportunities where possible. Assessing stocks may include test fisheries, commercial assessment fisheries, escapement enumeration, and over flights. In outer Nootka Sound where there is a mixture of wild and enhanced stocks, a harvest rate fishery occurs. The harvest rate target is 20 - 30% of the wild stock. Recent returns to Nootka Sound suggest current time area management strategies may require modification to achieve these target harvest rates. In addition, fisheries may occur on terminal surpluses adjacent to the enhanced systems in Tlupana Inlet. In Nitinat the harvest is dependent on forecasted and in-season assessed returning stocks. This year two additional commercial gillnet assessment fisheries have occurred. These fisheries were effort restricted and occurred in approach areas to Barkley Sound and Esperanza.

Another objective of chum management is to minimize the by catch of species of concern, such as Chinook, coho, and steelhead. Since 1995, the by catch concerns have been addressed by delayed opening dates, reduced fishing area, increased use of weed lines, and selective fishing techniques. In 2006, concerns for by catch of steelhead were again an important factor in determination of the fishing opportunities in the Nitinat area. In Nootka Sound coho retention incidental to the chum gill net fishery was permitted in 2006, although may be restricted in future fisheries due to decreased coho returns in recent years.

First Nations fisheries under section 35 remain a priority and occur in terminal areas based on maximum harvest levels. Additional fisheries may occur under ESSR policy guidelines, where surplus chum occur. These ESSR fisheries have primarily occurred in Nitinat Lake.

Fisheries

The primary fishery which harvests chum is the commercial sector. Of the commercial sector gillnet and seine are the main harvesters in Nitinat and gillnet in Nootka. First Nation fisheries (section 35) remain a priority and generally occur in terminal areas (i.e. Nitinat Lake). Effort and catch are usually relatively low. In river recreational fisheries are not wide spread, but have recently occurred annually in terminal area rivers (i.e. Nitinat River). Other recreational marine fisheries are generally low in effort for chum.

First Nations

The Ditidaht First Nation conducts FSC and ESSR fisheries in Nitinat Lake. Combined FSC and ESSR fishery catch in 2006 was 16,373 chum.

Recreational

WCVI Chum were open all year with a limit of four (4) per day. There is a minimum size limit of >30cm. WCVI recreational anglers kept <100 chum in the 2006 WCVI recreational fishery.

Commercial

Nitinat

The Nitinat commercial chum fishery is the largest on the west coast and targets returning Nitinat River hatchery stocks. The fishing period is generally October 1st -November 15th. The fishery is managed to achieve a minimum escapement target of 250,000 and maximum escapement target of 350,000 chum salmon. The commercial TAC is based on the pre-season forecast.

This fishery provides opportunities for both seine and gillnet fleets. Gill net and seine fishing opportunities are dependent on reaching established in-lake escapement milestones by specific dates. Fleet size has varied over the past 15 years influenced by pre-season forecasts and fish value. The size of the gill net fleet in the 1990's ranged as high as 240 vessels. Over the past 5 years the gill fleet size has fluctuated between 30 and 90 vessels. The seine fleet size typically will vary from 20 to 100 vessels.

Gill Nets

Weekly gill net fisheries commenced in Area 21 Nitinat on October 1st. There were 17 days of gill net fishing with the last day of fishing occurring on the 26th of November. Fleet size during the first three weeks of the fishery averaged 80 vessels per day. As expected the fleet size declined after the October 19th & 20th seine fisheries. The in season catch estimate for Area E gill nets in Area 21 is 226,916 chum salmon.

Seine

Area B seines fished 4 days in total, October 19th, 20th, 23rd & 24th, in Area 21/121 in 2006. The in-season catch estimate for Area B seines in Area 21/121 is 223,955 chum salmon. The majority of the seine harvest (204,257) occurred during the October 19th and 20th openings.

Nootka / Tlupana

There are 3 fishing areas in Area 25, Outer Nootka Sound, Tlupana Inlet and Esperanza Inlet targeting both wild and hatchery stocks. The Outer Nootka gill net fishery is limited to 50 vessel days per week. The Esperanza Inlet gill net fishery is restricted to a maximum of 8 vessels and is open in conjunction with the outer Nootka gill net fishery. Fishing opportunities in Tlupana Inlet are dependent on identifying surplus returns to the Conuma River Hatchery. Daily fleet size in the Outer Nootka fishery has averaged 25-35 vessels for the period 2000-2005. Fleet size in 2006 averaged 37 vessels.

Weekly gill net fisheries commenced in Area 25 on September 19th. There were 8 days of gill net fishing over the following 6 weeks in Outer Nootka Sound and Esperanza Inlet.

Tlupana Inlet was open for 2 days of gill net fishing in 2006. The last day of gill net fishing occurred on November 24.

The in season catch estimate for Area D gill nets in Area 25 is 124,596 chum salmon.

Barkley Sound and Esperanza Inlet Assessment Fisheries

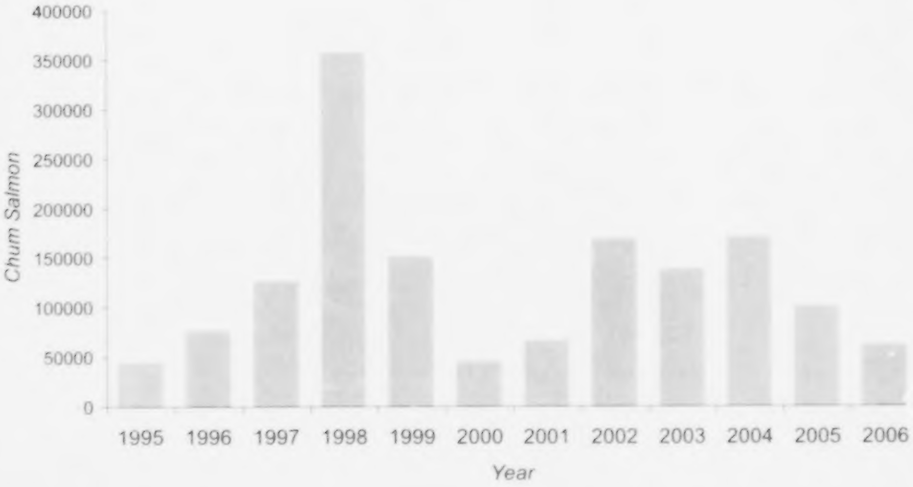
The commercial chum assessment fishery in Area 23 Barkley Sound targets returning wild stocks. This gill net fishery is limited to 8 vessels to a maximum of 16 vessel days per week. This fishery is assessing the feasibility of harvesting low levels of chums from areas that have not been fished for many years. Vessels fish in pre-determined zones on the first day and on the second day all vessels were free to choose among the zones. coho were allowed to be retained. One onboard observer was required in this fishery. The observer was on a different vessel each day of the fishery.

The in season chum catch estimate for Area D gill nets in Area 23 is 18,268 chum salmon.

Stock Status

Although high variability in return strength hampers predictive accuracy, preliminary estimates of 2006 WCVI chum returns were lower than predicted in all statistical areas. Preliminary escapement estimates to fourteen extensively surveyed streams suggest overall WCVI chum escapement was lower than 2005 levels, and lower than the previous three years. Nitinat (Area 21/22) total returns for 2005 were forecast at 860,000 chum. The Nitinat return is currently estimated at about 735,000 (brood was 105,000, preliminary escapement to the river estimated at 150,000). Nootka Sound/Esperanza Inlet (Area 25) return was forecast at 259,000 chum. The preliminary Area 25 escapements are low (~32,000) compared with 2005 escapement (~50,000). The 20% harvest rate strategy which was initiated in the early 1990's in Area 25 is currently under review. Barkley Sound (Area 23) preseason estimate was 80,000 chum. Our preliminary estimate of return to Area 23 is approximately 30,000 (escapement ~ 10,000). Chum escapement to surveyed streams in Area 23 and 25 were low relative to recent year averages, while Nitinat (Area 21/22) returns were above recent year averages.

There were no commercial fisheries or enhancement activities associated with chum in Area 24, 26 & 27 streams. Preliminary escapement estimates to streams in Clayoquot (Area 24) and Kyuquot (Area 26) Sound suggest increases over recent year averages. Area 27 escapement is lower than the recent year average level. The long term escapement trend (since the mid 1950's) suggests wild stocks are stable.



A WCVI chum salmon escapement index (1995 – 2006), using escapement estimates from fourteen extensively surveyed WCVI streams. The preliminary 2006 estimate for this escapement index is approximately 62,000 chum salmon. The ten year average escapement index value (1996 – 2005) is approximately 132,000 chum salmon.

Table 1. Preliminary 1994 to 2004 Catches in Canadian Treaty Limit Fisheries.

Fisheries/Stocks	Species	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995
Stikine River (all gears)	Sockeye coho Chinook-large Chinook-jack	101,209 72 15,776 2,078	85,890 276 18,997 2,177	84,866 275 3,857 2,574	58,784 190 1,396 1,052	17,294 82 1,362 578	25,600 233 1,480 103	27,468 301 3,086 628	38,055 181 2,916 1,264	43,803 726 2,164 423	65,559 401 4,483 286	74,281 1,404 2,471 421	53,467 3,418 1,646 860
Taku River (commercial gillnet)	Sockeye coho Chinook-large Chinook-jack	21,093 9,180 7,312 198	21,932 6,860 7,534 821	19,860 5,954 2,074 334	32,730 3,168 1,894 547	31,053 3,082 1,561 291	47,660 2,568 1,458 118	28,009 4,395 1,576 87	20,681 4,416 908 257	19,038 5,000 1,107 227	24,003 2,594 2,731 84	41,665 5,028 3,331 144	32,640 13,629 1,577 298
Areas 3 (1-4)* (commercial net)	Pink	228,378	878,552	402,459	667,103	876,631	473,318	127,000	2,162,280	61,000	329,000	987,000	2,613,000
Area 1 (commercial troll)	Pink	34,854	39,430	27,751	98,347	41,418	175,000	28,295	25,000	0	261,000	732,000	1,284,000
North Coast** (troll + sport)	Chinook	222,863 158,363+64500	243,606 174,806 + 68,800	241,508 167,508 + 74,000	191,657 137,357 + 54,300	141,848 94,748 + 47,100	43,500	32,048	70,701	144,650	145,568	26,900	119,100
West Coast Vancouver Island (troll + sport)	Chinook	146,883 103,978+ 37,905+5k (FN)	199,407 143,614 + 55,793	211,333 168,837 + 42,496	175,821 151,826 + 23,995	22,009 128,798	36,474 54,770	37,200 63,400	31,100 6,500	10,284	51,400	0	81,000
Fraser River Canadian Commercial Catch	Sockeye Pink	4,633,623 68,325	137,000 338,000	1,993,800 0	1,042,986 1,149,189	2,182,700 0	295,000 579,000	953,000 0	54,000 3,000	1,295,000 0	8,737,000 3,660,000	1,019,000 0	903,000 3,777,000
Fraser River US Commercial Catch	Sockeye Pink	701,300 0	0 0	192,200 0	244,000 773,000	434,600 0	240,000 427,000	494,000	41,000 3,000	707,000 0	1,578,000 1,565,000	257,000 0	415,000 1,919,000
West Coast Vancouver Island (commercial troll)	coho	2,399	5,989	0	0	0	0	0	0	0	0	761,000	1,345,000
Johnstone Strait (clockwork catch)***	Chum	800,363	787,226	1,089,100	1,026,029	700,000	236,000	161,000	41,411	1,820,000	104,593	101,971	269,000

*AREA 5-11 CATCHES INCLUDED PRIOR TO 1995 AND EXCLUDED FROM 1995-1998 INCLUSIVE. NOT PART OF 1999 ANNEX IV PROVISIONS.

** NORTH COAST CATCH EXCLUDES TERMINAL EXCLUSION CATCHES OF 6,000 ('91), 6,100 ('92), 7,400 ('93), 6,400 ('94), 1,702 ('95), 16,000 ('96), 5,943 ('97), and 2,182 in 1998. NO TERMINAL EXCLUSION IN THE 1999 AGREEMENT - COVERED UNDER THE AABM ARRANGEMENT; CENTRAL COAST AREAS NOT PART OF 1999 ANNEX IV PROVISIONS.

*** CANADIAN CLOCKWORK CATCH INCLUDES COMMERCIAL , IFF AND TEST FISH CATCHES IN AREAS 11-13 FOR1991-94 INCLUSIVE. AND IN AREAS 12-13 FOR 1995 TO 2004 INCLUSIVE

NOTE: BOLD LINE BETWEEN 1998 AND 1999 INDICATES THAT 1999 CATCHES ARE REPORTED ACCORDING TO FISHERIES/STOCKS UNDER THE 1999 ANNEX IV PROVISIONS.

Table 2. 2005/2006 Preliminary WCVI AABM Chinook Catch by Fishery.

Fishery	Month	Numbers	
		Kept	Released
Troll	Oct-05	12,198	1,032
	Nov-05	2,156	541
	Dec-05	1,689	172
	Jan-06	1,468	131
	Feb-06	5,154	523
	Mar-06	7,883	294
	Apr-06	20,561	627
	May-06	7,078	343
	Jun-06	20,807	1,266
	Jul-06	0	0
	Aug-06	886	10
	Sep-06	24,098	2,372
Total		**103,978**	**7,311**
Outside Sport	May-06	1,300	0
	Jun-06	4,905	2,612
	Jul-06	17,274	8,260
	Aug-06	12,209	5,655
	Sep-06	2,217	1,401
Total		**37,905**	**17,928**
First Nations Hook and Line Total		**5,000**	-
Grand Total		**146,883**	**25,239**

Table 3. 2006 Preliminary Southern BC ISBM Chinook Catch by Fishery and Area.

PST Regime	Gear	Fishery Area	Numbers	
			Kept	Released
ISBM	Area G Troll	Fraser Sockeye (11,12, 123-127)	207	4,120
	Area H Troll	Fraser Sockeye (12,13,18)	0	517
	Area H Troll	Fraser Chum (12,13)	0	97
	Area H Troll	Qualicum Chum (14)	0	1
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll (Test)	Gulf Sockeye Test Fishery (29)	1	13
	Area B Seine	Fraser Sockeye (12,13)	11	2,653
	Area B Seine (Test)	Fraser Sockeye (12,13)	36	1,542
	Area B Seine (Test)	Fraser Sockeye (20)	0	704
	Area B Seine (Test)	Barkley Sockeye (23)	0	0
	Area B Seine	Somass Chinook (23)	2,131	6
	Area B Seine	Fraser Chum (12,13)	0	175
	Area B Seine	Nitinat Chum (21)	0	5
	Area B Seine	Qualicum Chum (14)	0	0
	Area D Gillnet	Barkley Sockeye (23)	0	0
	Area D Gillnet	Fraser Sockeye (12,13)	103	857
	Area D Gillnet (Test)	Fraser Sockeye (12)	50	14
	Area D Gillnet	Tlupana Chinook (25)	4,845	0
	Area D Gillnet	Somass Chinook (23)	13,331	7
	Area D Gillnet	Nootka Chum (25)	0	131
	Area D Gillnet	Esperenza Chum (25)	1	35
	Area D Gillnet	Tlupana Chum (25)	0	0
	Area D Gillnet	Barkley Chum (23)	0	31
	Area D Gillnet	Fraser Chum (12,13)	44	63
	Area D Gillnet	Qualicum Chum (14)	0	3
	Area E Gillnet	Fraser Sockeye (29)	3,372	61
	Area E Gillnet	Nitinat Chum (21)	0	13
	Area E Gillnet	Fraser Chum (29)	32	104
	Area E Gillnet (Test)	Fraser Sockeye (20)	155	97
	Area E Gillnet (Test)	Mixed Species (29)	1,880	34
Total Commercial Catch			**24,164**	**11,152**
Recreational	Sport	Juan de Fuca	39,431	7,129
	Sport	Strait of Georgia	15,207	5,787
	Sport	Johnstone Strait	7,092	4,527
	Inside Sport	WCVI - ISBM	43,411	9,641
	Sport	Fraser River	15,143	550
Total Recreational Catch			**120,284**	**27,634**
First Nations		Johnstone Strait	200	--
		Strait of Georgia	NA	--
		WCVI	28,628	--
		Fraser River	21,733	333
Total First Nations Catch			**50,561**	**333**
TOTAL - ALL FISHERIES			**195,009**	**39,119**

Table 4. 2006 Preliminary coho Catch by Fishery and Area.

Fishery	Gear	Fishing Area	Numbers	
			Kept	Released
Commercial	Area G Troll	AABM Chinook (23-27, 123-127)	2,399	10,559
	Area G Troll	Fraser Sockeye (11,12, 123-127)	24	1,266
	Area H Troll	Fraser Sockeye (12,13,18)	0	232
	Area H Troll	Fraser Chum (12,13)	0	216
	Area H Troll	Qualicum Chum (14)	0	0
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll (Test)	Gulf Sockeye Test Fishery (29)	0	0
	Area B Seine	Fraser Sockeye (12,13)	0	2,389
	Area B Seine (Test)	Fraser Sockeye (12,13)	8	766
	Area B Seine (Test)	Fraser Sockeye (20)	0	650
	Area B Seine (Test)	Barkley Sockeye (23)	0	0
	Area B Seine	Somass Chinook (23)	807	0
	Area B Seine	Fraser Chum (12,13)	0	802
	Area B Seine	Nitinat Chum (21)	0	327
	Area B Seine	Qualicum Chum (14)	0	0
	Area D Gillnet	Barkley Sockeye (23)	0	2
	Area D Gillnet	Fraser Sockeye (12,13)	4	5,198
	Area D Gillnet (Test)	Fraser Sockeye (12)	172	91
	Area D Gillnet	Tlupana Chinook (25)	1	0
	Area D Gillnet	Somass Chinook (23)	50	2
	Area D Gillnet	Nootka Chum (25)	790	1
	Area D Gillnet	Esperenza Chum (25)	465	5
	Area D Gillnet	Tlupana Chum (25)	4	0
	Area D Gillnet	Barkley Chum (23)	67	0
	Area D Gillnet	Fraser Chum (12,13)	3	636
	Area D Gillnet	Qualicum Chum (14)	0	67
	Area E Gillnet	Fraser Sockeye (29)	1	41
	Area E Gillnet (Test)	Fraser Sockeye (20)	0	685
	Area E Gillnet	Nitinat Chum (21)	0	360
	Area E Gillnet	Fraser Chum (29)	0	254
	Area E Gillnet (Test)	Mixed Species (29)	12	46
Total Commercial Catch			**4,807**	**24,595**
Recreational	Sport	Juan de Fuca	2,945	5,446
	Sport	Strait of Georgia	1,247	3,438
	Sport	Johnstone Strait	2,283	2,314
	Sport	WCVI-Inside Coho Boundary	3,501	2,491
	Sport	WCVI-Outside Coho Boundary	13,333	26,503
	Sport	WCVI - Inside	5,012	13,075
	Sport	WCVI-AABM	11,822	15,919
	Sport	Fraser River	0	92
Total Recreational Catch			**23,309**	**40,284**
First Nations		Johnstone Strait	300	--
		Strait of Georgia	1,366	--
		WCVI Inshore	400	--
		Fraser River	264	391
Total First Nations Catch			**2,330**	**391**
TOTAL - ALL FISHERIES			**30,446**	**65,270**

Table 5. 2006 Preliminary Chum Catch by Fishery and Area.

Fishery	Gear	Fishing Area	Numbers	
			Kept	Released
Commercial	Area G Troll	AABM Chinook (23-27, 123-127)	1,662	83
	Area G Troll	Fraser Sockeye (11,12, 123-127)	165	28
	Area H Troll	Fraser Sockeye (12,13,18)	260	40
	Area H Troll	Fraser Chum (12,13)	67,630	0
	Area H Troll	Qualicum Chum (14)	695	1
	Area H Troll	Fraser Chum (29)	7	0
	Area H Troll (Test)	Gulf Sockeye Test Fishery (29)	0	0
	Area B Seine	Fraser Sockeye (12,13)	12,315	217
	Area B Seine (Test)	Fraser Sockeye (12,13)	6,067	0
	Area B Seine (Test)	Fraser Sockeye (20)	203	0
	Area B Seine (Test)	Barkley Sockeye (23)	0	0
	Area B Seine	Somass Chinook (23)	56	8
	Area B Seine	Fraser Chum (12,13)	595,700	0
	Area B Seine	Nitinat Chum (21)	223,955	0
	Area B Seine	Qualicum Chum (14)	3,386	0
	Area D Gillnet	Barkley Sockeye (23)	1	0
	Area D Gillnet	Fraser Sockeye (12,13)	14,197	149
	Area D Gillnet (Test)	Fraser Sockeye (12)	39	0
	Area D Gillnet	Tlupana Chinook (25)	0	0
	Area D Gillnet	Somass Chinook (23)	0	1
	Area D Gillnet	Nootka Chum (25)	78,197	2
	Area D Gillnet	Esperenza Chum (25)	33,875	0
	Area D Gillnet	Tlupana Chum (25)	12,524	0
	Area D Gillnet	Barkley Chum (23)	18,268	0
	Area D Gillnet	Fraser Chum (12,13)	137,033	60
	Area D Gillnet	Qualicum Chum (14)	80,534	61
	Area E Gillnet	Fraser Sockeye (29)	214	7
	Area E Gillnet (Test)	Fraser Sockeye (20)	59	0
	Area E Gillnet	Nitinat Chum (21)	226,916	181
	Area E Gillnet	Fraser Chum (29)	159,500	181
	Area E Gillnet (Test)	Mixed Species (29)	4,175	0
Total Commercial Catch			**1,677,633**	**1,019**
Recreational	Sport	Juan de Fuca	283	16
	Sport	Strait of Georgia	11,091	449
	Sport	Johnstone Strait	10,770	41
	Sport	WCVI - Inside	45	0
	Sport	WCVI - AABM	29	0
	Sport	Fraser River	900	7,086
Total Recreational Catch			**23,118**	**7,592**
First Nations		Johnstone Strait	8,000	--
		Strait of Georgia	15,000	--
		WCVI	20,773	--
		Fraser River	129,247	24,063
Total First Nations Catch			**173,020**	**24,063**
TOTAL - ALL FISHERIES			**1,873,771**	**32,674**

Table 6. 2006 Preliminary Pink Catch by Fishery and Area.

Fishery	Gear	Fishing Area	Numbers	
			Kept	Released
Commercial	Area G Troll	AABM Chinook (23-27, 123-127)	77	25
	Area G Troll	Fraser Sockeye (11,12, 123-127)	276	225
	Area H Troll	Fraser Sockeye (12,13,18)	1,815	1,005
	Area H Troll	Fraser Chum (12,13)	4	21
	Area H Troll	Qualicum Chum (14)	0	0
	Area H Troll	Fraser Chum (29)	0	0
	Area H Troll (Test)	Gulf Sockeye Test Fishery (29)	0	0
	Area B Seine	Fraser Sockeye (12,13)	17,483	22
	Area B Seine (Test)	Fraser Sockeye (12,13)	5,067	0
	Area B Seine (Test)	Fraser Sockeye (20)	40	0
	Area B Seine (Test)	Barkley Sockeye (23)	0	0
	Area B Seine	Somass Chinook (23)	0	0
	Area B Seine	Fraser Chum (12,13)	54	10
	Area B Seine	Nitinat Chum (21)	0	0
	Area B Seine	Qualicum Chum (14)	0	0
	Area B Seine	Upper Johnstone Strait Test Fishery (12)	717	3,742
	Area B Seine	Lower Johnstone Strait Test Fishery (13)	51	754
	Area D Gillnet	Barkley Sockeye (23)	0	0
	Area D Gillnet	Fraser Sockeye (12,13)	23,250	1,239
	Area D Gillnet (Test)	Fraser Sockeye (12)	726	0
	Area D Gillnet	Tlupana Chinook (25)	0	0
	Area D Gillnet	Somass Chinook (23)	0	0
	Area D Gillnet	Nootka Chum (25)	0	274
	Area D Gillnet	Esperenza Chum (25)	0	0
	Area D Gillnet	Tlupana Chum (25)	0	0
	Area D Gillnet	Barkley Chum (23)	0	0
	Area D Gillnet	Fraser Chum (12,13)	0	1
	Area D Gillnet	Qualicum Chum (14)	0	0
	Area D Gillnet	Round Island Test Fishery	757	0
	Area E Gillnet	Fraser Sockeye (29)	250	0
	Area E Gillnet (Test)	Fraser Sockeye (20)	81	0
	Area E Gillnet	Nitinat Chum (21)	0	0
	Area E Gillnet	Fraser Chum (29)	0	0
	Area E Gillnet (Test)	Mixed Species (29)	1	0
Total Commercial Catch			**50,648**	**7,318**
Recreational	Sport	Juan de Fuca	53	4
	Sport	Strait of Georgia	1,697	411
	Sport	Johnstone Strait	15,342	12,254
	Sport	WCVI - Inside	127	107
	Sport	WCVI - AABM	454	62
	Sport	Fraser River	0	0
Total Recreational Catch			**17,673**	**12,838**
First Nations		Johnstone Strait	NA	--
		Strait of Georgia	NA	--
		WCVI	0	--
		Fraser River	4	1
Total First Nations Catch			**4**	**1**
TOTAL - ALL FISHERIES			**68,325**	**20,157**

Table 7. 2006 Preliminary Sockeye Catch by Fishery and Area.

Fishery	Gear	Fishery (Area)	Numbers		Fraser Origin
			Kept	Released	
Commercial	Area G Troll	Fraser Sockeye (11,12, 123-127)	173,272	5	173,272
	Area H Troll	Fraser Sockeye (12,13,18)	216,708	140	216,708
	Area H Troll	Fraser Chum (12,13)	0	97	
	Area H Troll	Qualicum Chum (14)	0	0	
	Area H Troll	Fraser Chum (29)	0	0	
	Area H Troll (Test)	Gulf Sockeye Test Fishery (29)	2,908	0	2,908
	Area B Seine	Fraser Sockeye (12,13)	1,569,495	0	1,569,495
	Area B Seine	Somass Chinook (23)	0	356	
	Area B Seine	Fraser Chum (12,13)	21	328	21
	Area B Seine	Nitinat Chum (21)	0	0	
	Area B Seine	Qualicum Chum (14)	0	0	
	Area B Seine (Test)	Fraser Sockeye (12,13)	58,813	0	58,813
	Area B Seine (Test)	Barkley Sockeye (23)	11,300	0	
	Area B Seine (Test)	Fraser Sockeye (20)	38,586	0	38,586
	Area D Gillnet	Barkley Sockeye (23)	5,468	0	
	Area D Gillnet	Fraser Sockeye (12,13)	461,222	48	461,222
	Area D Gillnet	Tlupana Chinook (25)	0	0	
	Area D Gillnet	Somass Chinook (23)	0	3	
	Area D Gillnet	Nootka Chum (25)	0	6	
	Area D Gillnet	Esperenza Chum (25)	0	0	
	Area D Gillnet	Tlupana Chum (25)	0	0	
	Area D Gillnet	Barkley Chum (23)	0	0	
	Area D Gillnet	Fraser Chum (12,13)	2	31	2
	Area D Gillnet	Qualicum Chum (14)	0	0	
	Area D Gillnet (Test	Fraser Sockeye (12)	1,511	0	1,511
	Area E Gillnet	Fraser Sockeye (29)	773,598	79	773,598
	Area E Gillnet (Test	Fraser Sockeye (20)	13,967	0	13,967
	Area E Gillnet	Nitinat Chum (21)	0	2	
	Area E Gillnet	Fraser Chum (29)	1	4	
	Area E Gillnet (Test	Mixed Species (29)	10,231	0	10,231
Total Commercial Catch			**3,337,103**	**1,099**	
Recreational	Sport	Juan de Fuca	10,041	1,047	10,041
	Sport	Strait of Georgia	31,855	2,294	31,855
	Sport	Johnstone Strait	5,445	575	5,445
	Sport	WCVI - Inside	33,453	851	NR*
	Sport	WCVI - AABM	2,885	79	
	Sport	Fraser River	134,292	23,643	134,292
Total Recreational Catch			**217,971**	**28,489**	
First Nations		Johnstone Strait	288,235	--	288,235
		Strait of Georgia	2,387	--	2,387
		WCVI	50,098	--	7292
		Fraser River	833,742	452	833,742
Total First Nations Catch			**1,174,462**	**452**	
TOTAL - ALL FISHERIES			**4,729,536**	**30,040**	4,633,623

Table 8. 2006 Commercial Totals by Gear and Area.

Gear	Fishing Area	Chinook Kept	Chinook Released	Coho Kept	Coho Released	Chum Kept	Chum Released	Pink Kept	Pink Released	Sockeye Kept	Sockeye Released
Area G Troll	AABM Chinook (23-27, 123-127)	103,978	7,311	2,399	10,559	1,662	83	77	25	5	19
Area G Troll	Fraser Sockeye (11,12, 123-127)	207	4,120	24	1,266	165	28	276	225	173,272	5
Area H Troll	Fraser Sockeye (12,13,18)	0	517	0	232	260	40	1,815	1,005	216,708	140
Area H Troll	Fraser Chum (12,13)	0	97	0	216	67,630	0	4	21	0	97
Area H Troll	Qualicum Chum (14)	0	1	0	0	695	1	0	0	0	0
Area H Troll	Fraser Chum (29)	0	0	0	0	7	0	0	0	0	0
Area H Troll (Test)	Gulf Sockeye Test Fishery (29)	1	13	0	0	0	0	0	0	2,908	0
Area B Seine	Fraser Sockeye (12,13)	11	2,653	0	2,389	12,315	217	17,483	22	1,569,495	0
Area B Seine (Test)	Fraser Sockeye (12,13)	36	1,542	8	766	6,067	0	5,067	0	58,813	0
Area B Seine (Test)	Fraser Sockeye (20)	0	704	0	650	203	0	40	0	38,586	0
Area B Seine (Test)	Barkley Sockeye (23)	0	0	0	0	0	0	0	0	11,300	0
Area B Seine	Somass Chinook (23)	2,131	6	807	0	56	8	0	0	0	356
Area B Seine	Fraser Chum (12,13)	0	175	0	802	595,700	0	54	10	21	328
Area B Seine	Nitinat Chum (21)	0	5	0	327	223,955	0	0	0	0	0
Area B Seine	Qualicum Chum (14)	0	0	0	0	3,386	0	0	0	0	0
Area D Gillnet	Barkley Sockeye (23)	0	0	0	2	1	0	0	0	5,468	0
Area D Gillnet	Fraser Sockeye (12,13)	103	857	4	5,198	14,197	149	23,250	1,239	461,222	48
Area D Gillnet (Test)	Fraser Sockeye (12)	50	14	172	91	39	0	726	0	1,511	0
Area D Gillnet	Tlupana Chinook (25)	4,845	0	1	0	0	0	0	0	0	0
Area D Gillnet	Somass Chinook (23)	13,331	7	50	2	0	1	0	0	0	3
Area D Gillnet	Nootka Chum (25)	0	131	790	1	78,197	2	0	274	0	6
Area D Gillnet	Esperenza Chum (25)	1	35	465	5	33,875	0	0	0	0	0
Area D Gillnet	Tlupana Chum (25)	0	0	4	0	12,524	0	0	0	0	0
Area D Gillnet	Barkley Chum (23)	0	31	67	0	18,268	0	0	0	0	0
Area D Gillnet	Fraser Chum (12,13)	44	63	3	636	137,033	60	0	1	2	31
Area D Gillnet	Qualicum Chum (14)	0	3	0	67	80,534	61	0	0	0	0
Area E Gillnet	Fraser Sockeye (29)	3,372	61	1	41	214	7	250	0	773,598	79
Area E Gillnet (Test)	Fraser Sockeye (20)	155	97	0	685	59	0	81	0	13,967	0
Area E Gillnet	Nitinat Chum (21)	0	13	0	360	226,916	181	0	0	0	2
Area E Gillnet	Fraser Chum (29)	32	104	0	254	163,543	181	0	0	1	4
Area E Gillnet (Test)	Mixed Species (29)	1,880	34	12	46	4,175	0	1	0	10,231	0
TOTALS		26,199	11,283	4,795	24,295	1,680,014	936	49,047	2,797	3,337,103	1,099

Table.9. Recreational Totals by Area.

Gear	Fishing Area	Chinook Kept	Chinook Released	Coho Kept	Coho Released	Chum Kept	Chum Released	Pink Kept	Pink Released	Sockeye Kept	Sockeye Released
Sport	Juan de Fuca	39,431	7,129	2,945	5,446	283	16	53	4	10,041	1,047
Sport	Strait of Georgia	15,207	5,787	1,247	3,438	11,091	449	1,697	411	31,855	2,294
Sport	Johnstone Strait	7,092	4,527	2,283	2,314	10,770	41	15,342	12,254	5,445	575
Inside Sport	WCVI-ISBM	43,411	9,641	5,012	13,075	45	0	127	107	33,453	851
Outside Sport	WCVI - AABM	37,905	17,928	11,822	15,919	29	0	454	62	2,885	79
Sport	Fraser River	15,143	550	0	92	900	7,086	0	0	134,292	23,643
TOTALS		158,189	45,562	23,309	40,284	23,118	7,592	17,673	12,838	217,971	28,489

Table 10. First Nations Catch Estimates

Fishing Area	Chinook Kept	Coho Kept	Chum Kept	Pink Kept	Fraser Sockeye Kept	Barkley Sockeye Kept
Johnstone Strait	200	300	8,000	NA	288,235	0
Strait of Georgia	NA	1,366	15,000	NA	2,387	0
WCVI	28,628	400	20,773	NA	12,292	42,806
Fraser River	21,733	264	129,247	4	833,742	0
TOTALS	50,561	2,330	173,020	4	1,136,656	42,806

C. 2006 POST-SEASON REPORT FOR UNITED STATES SALMON FISHERIES OF RELEVANCE TO THE PACIFIC SALMON COMMISSION

Northern Boundary Area Fisheries

District 104 Purse Seine Fishery

The June 30, 1999 revision of the Pacific Salmon Treaty (PST) Agreement calls for the implementation of abundance based management in the District 104 purse seine fishery. The agreement allows the District 104 purse seine fishery to harvest 2.45 percent of the Annual Allowable Harvest (AAH) of Nass and Skeena sockeye prior to statistical week 31. The AAH is calculated as the total run of Nass and Skeena sockeye salmon minus either the escapement requirement of 1.1 million (200,000 Nass and 900,000 Skeena) or the actual inriver escapement, whichever is less.

The District 104 purse seine fishery opens the first Sunday in July; in 2006 the initial opening was July 2 (Week 27). The pre-Week 31 fishing plan for District 104 was based on the preseason Canadian DFO forecast returns of approximately 1.105 million Nass and 1.85 million Skeena sockeye salmon. Management actions took into account an apparent "underage" of sockeye salmon from the 1999 through 2005 seasons.

In the 2006 treaty period, 89,615 sockeye were harvested in: 1) a 12-hour opening in Week 27; 2) a 15-hour and an 8-hour opening in Week 28; 3) two 15-hour openings in Week 29; and 4) two 15-hour openings in Week 30 (Table 1). The number of purse seine vessels fishing ranged from 8 to 30 in individual openings during the period covered by the treaty. In past years 60% to 80% of treaty-period sockeye have been of Nass and Skeena origin. Thus, we would anticipate that between 54,800 and 71,700 Nass and Skeena sockeye were harvested in the District 104 purse seine fishery during the treaty period. The final targeted number of Nass and Skeena sockeye, and the actual catch by stock, will not be available until catch, escapement, and stock composition estimates are finalized for the year.

While other purse seine fisheries are not bound by the Treaty, the fleet moves freely between districts, so seining opportunities elsewhere can affect the catch and effort in District 104.

The average numbers of hours, boats and boat-days fished pre-Week 31 in District 104 since the Pacific Salmon Treaty was signed in 1985 are down 54%, 53% and 81% respectively compared to the 1980-1984 period (Table 2). The pre-Week 31 Treaty-period sockeye harvest is also down 34% despite a 289% increase in the average sockeye catch-per-boat-day since 1984.

Table 1. Catch and Effort in the Alaska District 104 purse seine fishery, 2006.

Week/Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
27	7/2	343	1,000	986	810	6,816	6	12
28	7/9	134	3,293	895	2,210	4,731	2	15
28B	7/13	52	605	460	1,524	1,570	8	8
29	7/16	534	5,303	2,241	14,249	9,826	12	15
29B	7/20	367	13,261	2,552	34,650	8,160	8	15
30	7/23	767	24,427	3,136	90,171	10,582	30	15
30B	7/27	657	41,726	2,686	142,228	12,226	29	15
31	7/30	789	47,571	1,969	168,728	11,070	45	15
31B	8/3	3,134	35,199	2,931	146,255	15,813	50	15
32	8/6	1,144	31,364	2,793	153,068	17,220	49	15
32B	8/10	750	12,514	788	49,039	10,969	30	8
33	8/17	214	13,028	1,499	35,032	6,872	19	15
34	8/20	244	12,743	890	34,571	4,765	20	15
Weeks 27-30		2,854	89,615	12,956	285,842	53,911	39	95
Weeks 31-34		6,275	152,419	10,870	586,693	66,709	69	83
Total Season		9,129	242,034	23,826	872,535	120,620	71	178

Table 2. Fishing opportunity, effort, and sockeye harvests prior to Week 31 in the District 104 purse seine fishery, 1980 to 2006.

Year	Hours Fished	Boats Fished	Fraction Days Fished (1d=15hrs)	Boat-Days Fished (Fraction Boats and Fraction Days)	Sockeye Harvest	Sockeye Catch Boat-Day
1980	207	244	13.8	2,877	266,273	93
1981	132	212	8.8	1,108	185,188	167
1982	117	255	7.8	1,435	213,150	149
1983	108	241	7.2	1,211	170,306	141
1984	132	174	8.8	805	103,319	128
1985	84	141	5.6	502	100,590	200
1986	108	194	7.2	968	91,320	94
1987	90	134	6.0	457	72,385	158
1988	108	210	7.2	994	248,789	250
1989	84	135	5.6	438	157,566	360
1990	42	171	2.8	276	169,943	615
1991	41	134	2.7	243	98,583	406
1992	29	108	1.9	142	79,643	561
1993	45	171	3.0	343	163,189	476
1994	55	84	3.7	202	158,524	783
1995	58	109	3.9	218	71,376	328
1996	31	113	2.1	128	215,144	1,684
1997	56	159	3.7	409	572,942	1,402
1998	32	78	2.1	89	17,394	196
1999	30	38	2.0	44	7,664	174
2000	81	66	5.4	192	48,969	255
2001	50	95	3.3	182	203,090	1,115
2002	72	44	4.8	124	26,554	215
2003	52	40	3.5	97	84,742	875
2004	107	24	7.1	102	30,758	302
2005	68	38	4.5	93	35,690	382
2006	95	39	6.3	117	89,615	766
Avg. 80-84	139	225	9	1,487	187,647	135
Avg. 85-06	64	106	4	289	124,749	527
% Change	-54%	-53%	-54%	-81%	-34%	289%

In the 2006 season, the District 104 purse seine fishery harvested 872,535 pink salmon, 242,034 sockeye, 23,826 coho, 120,620 chum, and 9,129 Chinook salmon. A total of 71 purse seine vessels fished in District 104, up from a low of 60 in 2004, but less than half the 1985-2005 average of 183. Both fishing effort and the catch of all species were below the 1985-2005 averages (Figures 1-6)

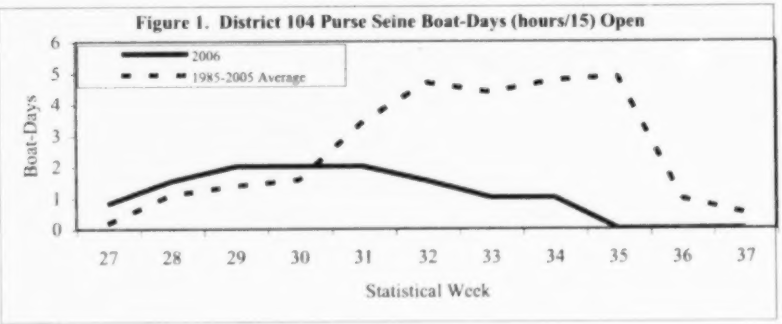


Figure 1. District 104 Purse Seine Boat-Days (hours/15) Open

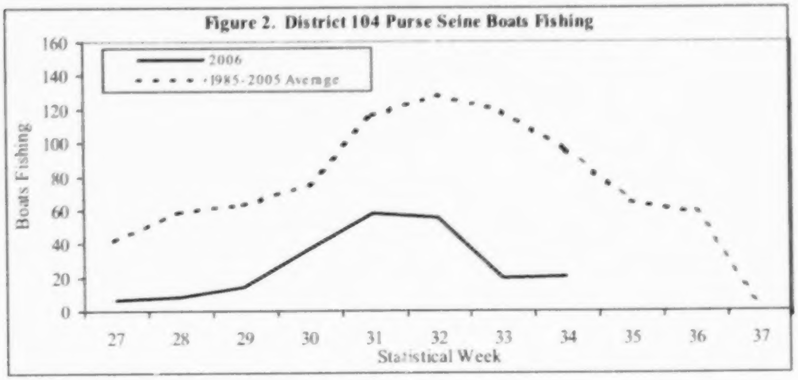


Figure 2. District 104 Purse Seine Boats Fishing

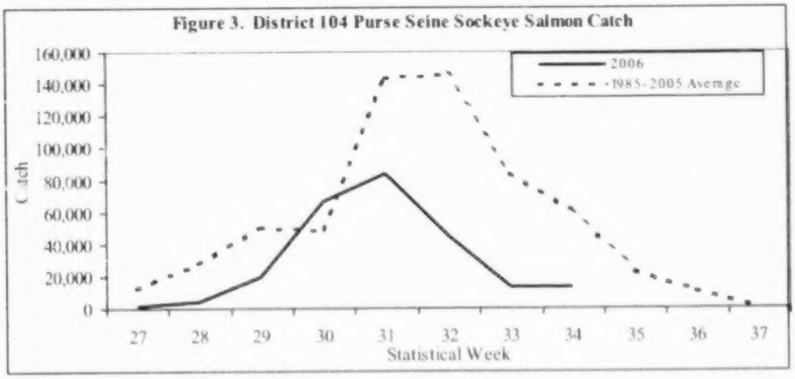


Figure 3. District 104 Purse Seine Sockeye Salmon Catch

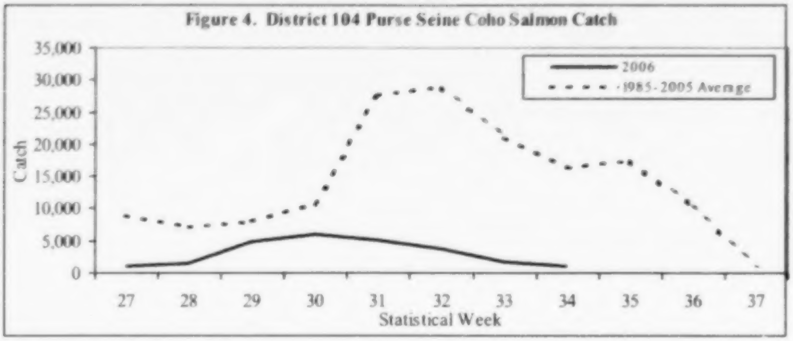


Figure 4. District 104 Purse Seine Coho Salmon Catch

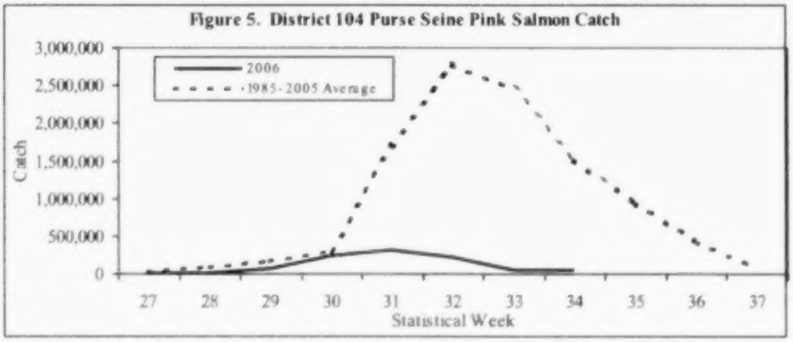


Figure 5. District 104 Purse Seine Pink Salmon Catch

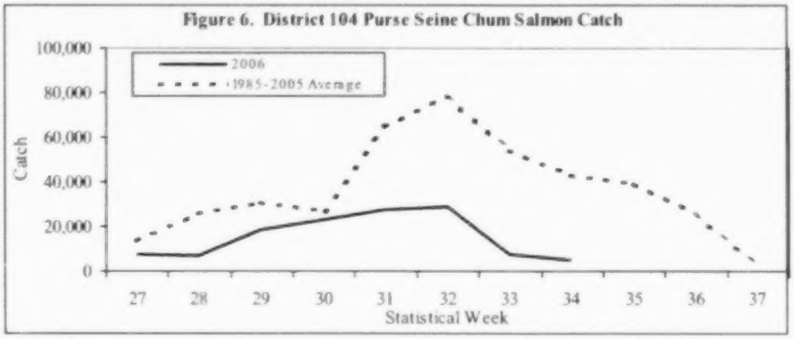


Figure 6. District 104 Purse Seine Chum Salmon Catch

District 101 Drift Gillnet Fishery

The June 30, 1999 PST agreement calls for abundance based management of the District 101 (Tree Point) drift gillnet fishery. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye run. For the 2006 season, DFO forecast a total return of 1.105 million Nass River sockeye salmon. The AAH is calculated as the total run of Nass sockeye salmon minus either the escapement requirement of 200,000 or the actual inriver escapement, whichever is less.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the strength of the Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan sets gillnet fishing time in this district in relation to the District 101 purse seine fishing time when both fleets are concurrently harvesting the same pink salmon stocks.

A total of 62,770 sockeye salmon were harvested in the District 101 drift gillnet fishery in 2006 (Table 3). The sockeye harvest and number of boat-hours and boats fished were below the 1985-2005 average while the hours fished was above average. The number of boats fishing annually since the Treaty was signed continued its drop from a high of 201 in 1986 to a low of 48 in 2006. The final number of Nass River sockeye harvested at Tree Point will not be available until catch, escapement, and stock composition estimates are finalized for the 2006 season.

Table 3. Weekly catch and effort in the Alaska District 101 commercial drift gillnet fishery, 2006.

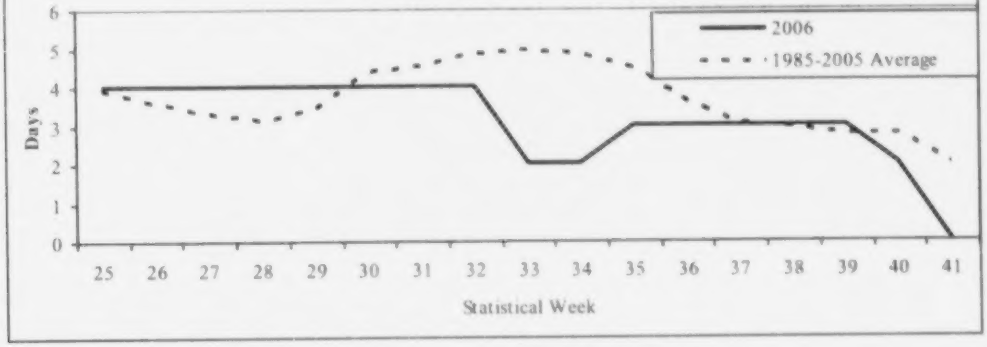
Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
25	18-Jun	569	8,280	26	68	2,681	36	96
26	26-Jun	513	7,230	116	1,132	11,187	41	96
27	4-Jul	377	14,002	916	9,812	31,224	36	96
28	12-Jul	108	7,273	606	22,998	41,456	35	96
29	20-Jul	47	8,098	858	25,725	36,420	35	96
30	28-Jul	44	4,382	1,478	24,526	25,377	35	96
31	5-Aug	23	4,415	1,606	39,258	33,972	34	96
32	13-Aug	13	3,690	1,600	36,855	15,518	34	96
33	21-Aug	3	1,675	1,010	20,313	7,596	28	48
34	29-Aug	7	747	636	13,664	7,861	22	48
35	6-Sep	3	1,536	2,391	14,989	21,326	26	72
36	14-Sep	4	890	2,858	2,818	13,077	27	72
37	22-Sep	1	482	6,003	723	12,695	21	72
38	30-Sep	4	45	5,090	80	6,548	17	72
39	8-Oct	0	25	3,059	0	2,022	12	72
40	16-Oct	0	0	828	0	267	8	48
Total		1,716	62,770	29,081	212,961	269,227	48	1,272

Table 4. Annual sockeye harvest in the Alaska District 101 drift gillnet fishery, 1985 to 2006, and comparison of sockeye harvest and effort (number of boats, hours, and boat-hours fished) between Statistical Weeks 26 and 35 when sockeye salmon are most abundant in this district.

	Total	Catch and Effort between Weeks 26 and 35			
Year	Sockeye Harvest	Sockeye Harvest	Boats	Hours	Boat-Hours
1985	173,100	159,021	153	1,032	157,865
1986	145,699	143,286	198	960	190,044
1987	107,503	106,638	170	615	104,519
1988	116,115	115,888	187	756	141,338
1989	144,936	130,024	176	1,023	180,016
1990	85,691	78,131	150	840	125,969
1991	131,492	123,508	130	984	127,920
1992	244,649	243,878	118	1,080	127,416
1993	394,098	390,299	148	1,032	152,733
1994	100,377	98,725	142	984	139,700
1995	164,294	151,131	128	1,008	129,024
1996	212,403	175,569	129	1,104	142,408
1997	169,474	152,662	128	1,008	129,024
1998	160,506	159,307	124	1,044	129,454
1999	160,028	158,268	118	1,032	121,776
2000	94,651	94,399	95	912	86,640
2001	80,041	62,129	73	1,020	74,445
2002	120,353	106,360	68	1,008	68,544
2003	105,263	96,921	68	1,104	75,058
2004	142,357	141,395	61	1,104	67,332
2005	79,725	75,875	69	1,104	76,162
Avg. 1985-2005	149,179	141,115	125	988	123,898
2006	62,770	53,048	45	840	37,791

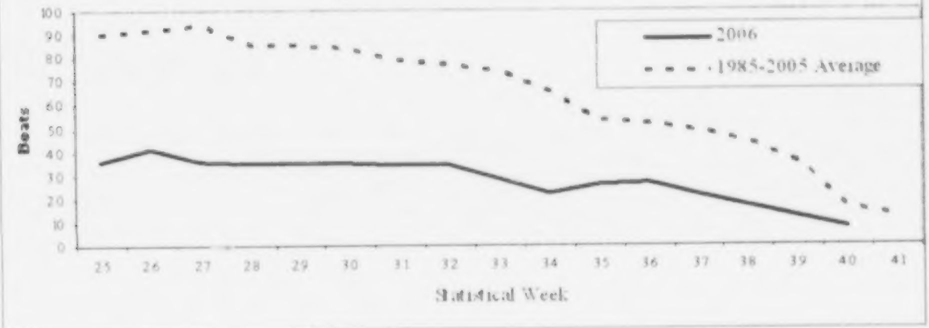
The District 101 gillnet fishery was initially opened Sunday June 18 (Week 25). The length of weekly openings were below treaty period (1985-2005) averages during the middle portion of the season (Figure 7).

Figure 7. District 101 Gillnet Days Open



The number of gillnet boats fishing during weekly openings of the District 101 gillnet fishery remained below the 1985-2005 average (Figure 8).

Figure 8. District 101 Gillnet Boats Fishing



The 2006 weekly catch of sockeye salmon in the District 101 gillnet fishery was below the treaty period (1985-2005) average throughout the season (Figure 9). The cumulative sockeye harvest prior to the initiation of the Pink Salmon Management Plan in Week 30 was 44,883 fish, or about 72% of the season's total sockeye harvest. Weekly catches of coho and pink salmon were below the treaty period average throughout the season (Figures 10 and 12). Chum salmon catches were above average in the first half of the season and below average in the second half (Figure 11).

Figure 9. District 101 Gillnet Sockeye Catch

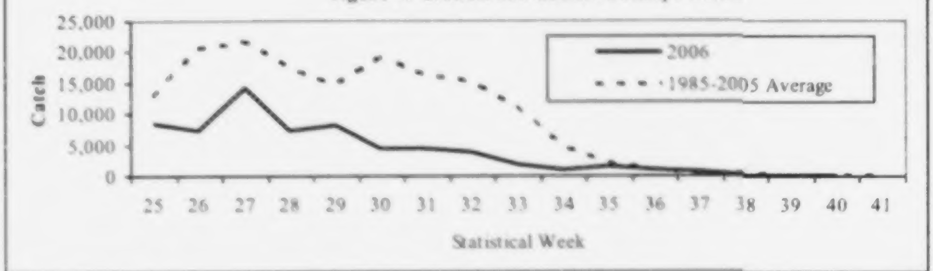


Figure 10. District 101 Gillnet Coho Catch

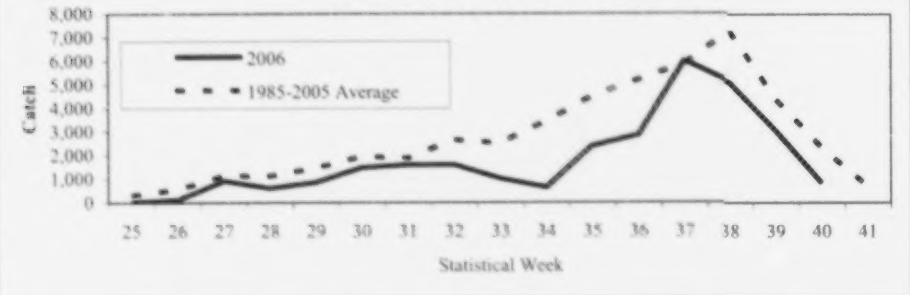


Figure 11. District 101 Gillnet Chum Catch

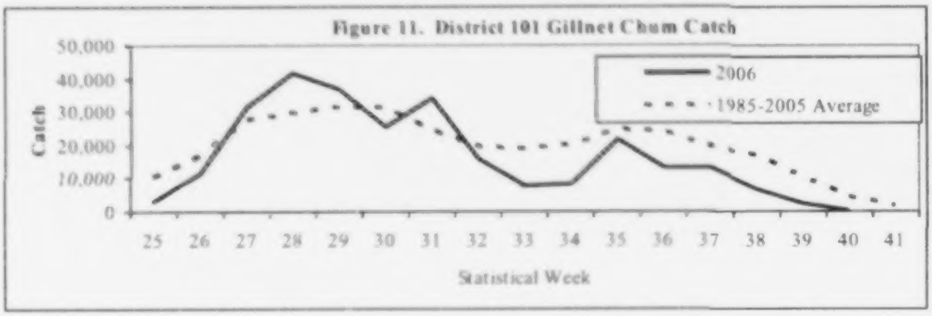
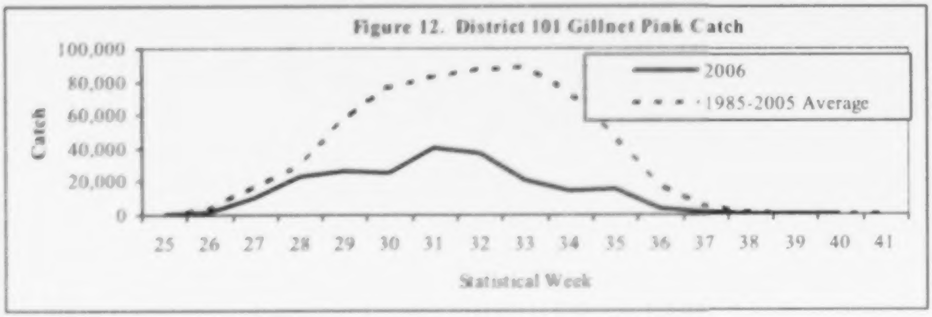


Figure 12. District 101 Gillnet Pink Catch



During the period (Weeks 30-36) when the Pink Salmon Management Plan was in effect catches of pink salmon in the District 101 gillnet fishery were below average.

Beginning on August 27 (week 35) the fishery was managed on the strength of fall chum and coho salmon returns; both fall chum and fall coho catches were below average.

Below average fall chum and coho salmon catches are, in part, a reflection of declining fishing effort at Tree Point.

Escapements

The total pink salmon escapement index of 10.2 million for all of Southeast Alaska ranked 20th since 1960—the lowest escapement index since 1990, and just over half of the recent 10-year average of 19.1 million. Although biological escapement goals were met for all 3 sub-regions, the index of 4.4 million for the Southern Southeast sub-region was only just sufficient to meet the escapement goal of 4.0–9.0 million (Table 5). The Southern Southeast sub-region includes all the waters of Districts 101-108. Escapements appeared to be better in the northern areas, particularly in the Northern Southeast Outside sub-region where the total escapement index of 1.9 million exceeded the upper range of the biological escapement goal.

Table 5. Southeast Alaska pink salmon escapement indices, and biological escapement goals by sub-region (in millions).

Sub-region	2006 Pink Salmon Index	Biological Escapement Goal Lower Bound	Biological Escapement Goal Upper Bound
Southern Southeast	4.4	4.0	9.0
Northern Southeast Inside	3.9	2.5	5.5
Northern Southeast Outside	1.9	0.75	1.75
Total	10.2		

The Hugh Smith Lake adult sockeye escapement was 42,000, and exceeded the upper end of the recently established biological escapement goal range of 8,000 to 18,000 adult sockeye salmon. Stocked Hugh Smith Lake sockeye salmon comprised 65% of the escapement in 2006. The escapement of sockeye salmon into McDonald Lake was estimated to be 17,000 fish, based on the expanded foot survey index. This is the lowest escapement estimate in the past 25 years, and the 5th year in the past 6 that the escapement has been below the escapement goal range of 70,000 to 100,000 sockeye salmon. Klawock Lake had a minimum weir count of 12,700 sockeye salmon, however, a mark-recapture estimate has not been finalized. Other sockeye salmon projects conducted in the Northern Boundary Area included adult salmon weirs at the Karta River (10,700 sockeye salmon), and at Hetta Lake (preliminary weir count 18,000 sockeye salmon).

Nearly all measures that we have for chum salmon indicated that 2006 runs were above average for most of the region. The total harvest of chum salmon in the region (13.9 million) ranked as the 5th largest historical harvest in Southeast Alaska, and was the highest since 2000. Over the past 10 years, about 75% of the total harvest was hatchery chums. Escapement survey information for chum salmon index streams indicated that the escapements to Southeast Alaska were also generally strong in 2006. The weighted rank index of peak survey estimates to 82 chum salmon streams was just above the 21-year 1985–2005 average, and well up from 2005 (Figure 13). In the Northern Boundary Area, the estimated escapement at Fish Creek, near Hyder, was 43,000 chum salmon (well above the recent 10-year average of 27,000), and the peak escapement survey counts for Cholmondeley Sound fall chum salmon totaled 48,000 (right at the recent 10-year average of 50,000).

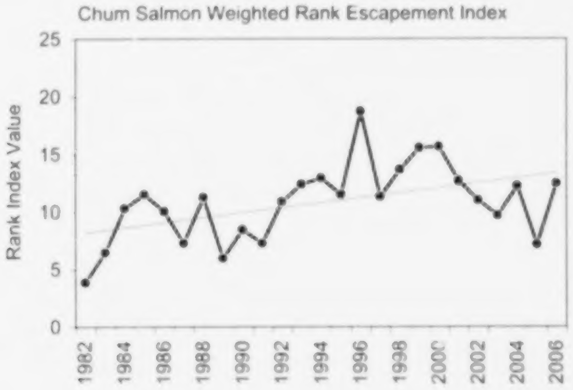


Figure 13. Weighted rank index of annual peak survey estimates of chum salmon in 82 chum salmon streams in Southeast Alaska, 1982–2006.

Transboundary Area Fisheries

Stikine River Area Fisheries

The 2006 harvest in the District 106 commercial gillnet fishery included 1,737 Chinook, 91,980 sockeye, 69,015 coho, 149,907 pink, and 268,436 chum salmon (Table 6). District 106 catches of all species except Chinook and chum were below the 1996-2005 average. Lower catches can be partially attributed to a shift in effort from District 106 into District 108 to target returning Stikine Chinook and hatchery chum. An estimated 32% of the coho salmon harvest was of Alaskan hatchery origin.

Table 6. Weekly salmon catch in the Alaskan District 106 commercial drift gillnet fisheries, 2006. Catches do not include Blind Slough terminal area harvests.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
24	11-Jun	171	372	26	0	53	7	3	21
25	18-Jun	377	3,843	986	115	1,587	27	3	81
26	25-Jun	398	8,939	3,044	765	13,280	75	3	225
27	2-Jul	307	17,965	3,921	2,643	51,705	56	3	168
28	9-Jul	182	14,400	5,213	6,288	41,120	75	3	225
29	16-Jul	125	20,416	5,318	38,968	67,274	88	3	264
30	23-Jul	66	6,043	2,023	28,334	20,614	56	2	112
31	30-Jul	30	3,609	1,069	23,105	11,027	39	2	78
32	6-Aug	19	4,321	1,266	23,573	9,120	35	2	70
33	13-Aug	2	3,783	1,641	11,848	6,436	25	2	50
34	20-Aug	5	5,032	2,942	10,449	7,305	28	2	56
35	27-Aug	0	2,272	3,171	2,000	5,930	38	2	76
36	3-Sep	3	614	7,748	1,444	7,328	40	2	80
37	10-Sep	35	295	22,235	366	17,828	68	4	272
38	17-Sep	14	69	6,615	7	6,882	49	4	196
39	24-Sep	3	5	1,287	2	774	18	3	54
40	1-Oct	0	2	510	0	173	4	2	8
Total 2006		1,737	91,980	69,015	149,907	268,436	143	45	2,036
1996-2005 Average		1,024	135,147	175,405	421,306	245,541	176	47	3,666
2006 as % of Average		170%	68%	39%	36%	109%	81%	96%	56%

In the 2006 District 108 fishery, 29,225 Chinook, 61,298 sockeye, 34,430 coho, 56,810 pink, and 343,637 chum salmon were harvested (Table 7). The catches for all species were above average, with Chinook and chum harvests being the highest on record (Figures 13-18). Effort was generally above average throughout the season. An estimated 31% of the coho salmon harvest was of Alaskan hatchery origin.

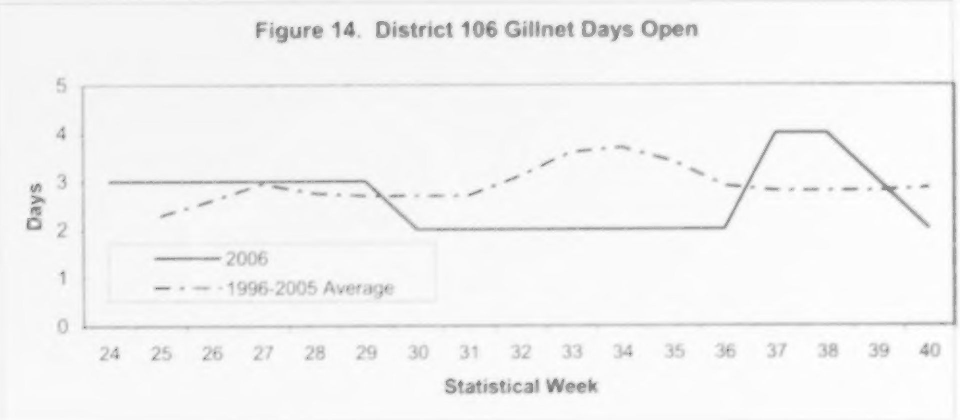


Figure 15. District 106 Gillnet Boats Fishing

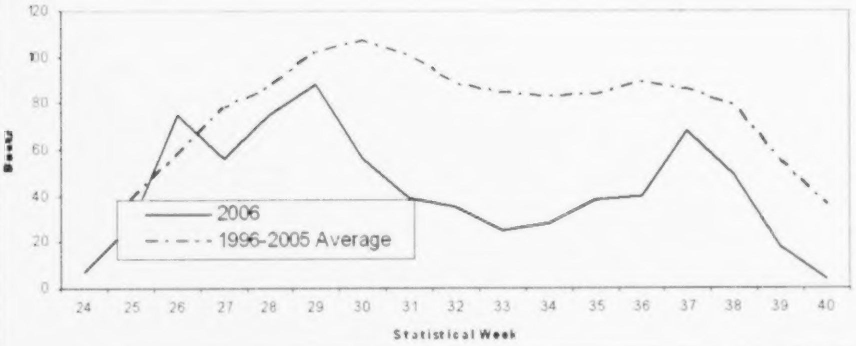


Figure 16. District 106 Gillnet Sockeye Catch

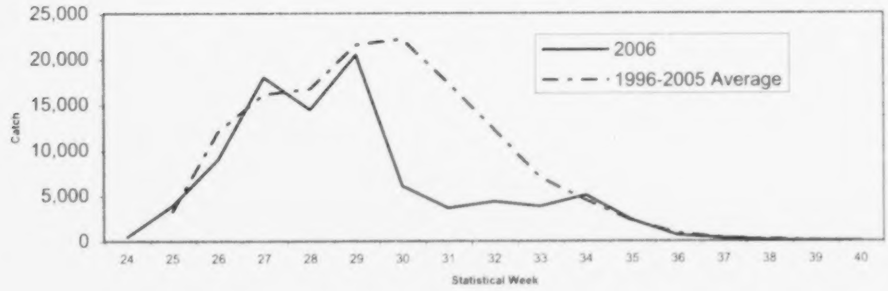


Figure 17. District 106 Gillnet Coho Catch

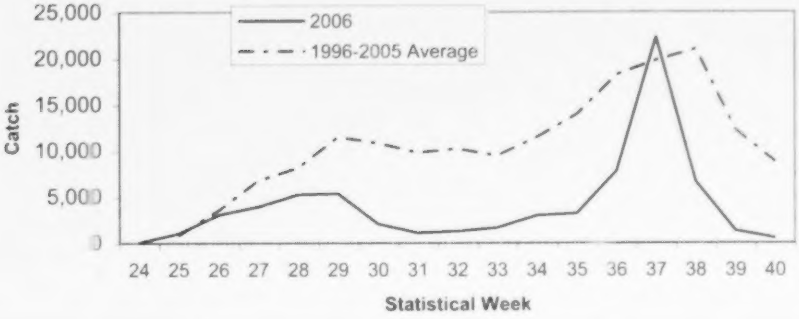


Figure 18. District 106 Gillnet Pink Catch

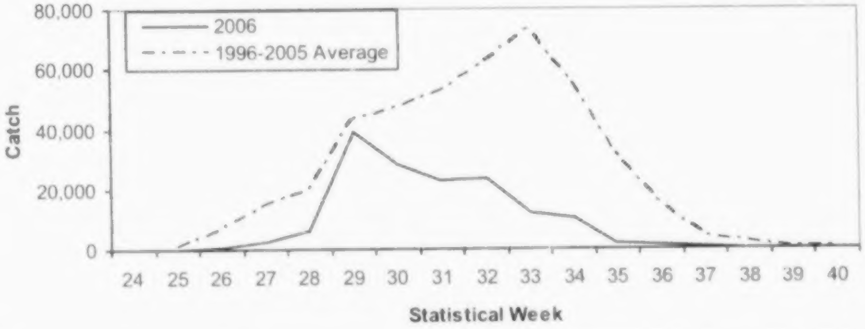


Figure 19. District 106 Gillnet Chum Catch

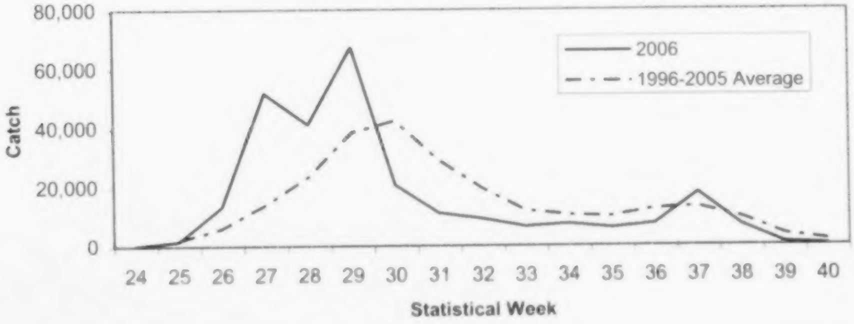


Table 7. Weekly salmon catch and effort in the Alaskan District 108 commercial drift gillnet fishery, 2006. The permit days are adjusted for boats that fished only the midweek openings.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Permit Days
18	1-May	358	0	0	0	0	34	2	68
19	8-May	954	0	0	0	0	52	2	104
20	15-May	1,280	0	0	0	4	85	2	170
21	22-May	3,140	0	0	0	0	110	2	220
22	29-May	4,369	0	0	0	0	106	2	212
23	5-Jun	5,337	3	0	0	4	100	2	200
24	11-Jun	5,766	125	9	0	62	87	3	261
25	18-Jun	4,538	789	47	3	237	65	3	195
26	25-Jun	666	3,933	108	27	1,596	49	3	147
27	2-Jul	1,308	20,567	522	1,032	27,000	78	4	235
28	9-Jul	1,107	20,168	490	5,193	47,064	88	5	331
29	16-Jul	233	7,957	431	15,288	81,528	99	5	331
30	23-Jul	63	4,303	476	15,201	75,760	101	3	234
31	30-Jul	25	1,594	486	7,354	74,160	82	3	208
32	6-Aug	9	939	585	7,384	21,510	45	2	90
33	13-Aug	3	255	734	3,704	8,171	24	2	48
34	20-Aug	6	285	1,324	1,223	1,546	14	2	28
35	27-Aug	2	187	1,325	300	401	22	2	44
36	3-Sep	21	116	5,189	89	1,903	27	2	54
37	10-Sep	21	65	12,361	10	1,139	32	4	128
38	17-Sep	16	11	8,421	1	1,370	49	4	196
39	24-Sep	1	1	1,526	1	126	22	3	66
40	1-Oct	2	0	396	0	56	3	2	6
Total 2006		29,225	61,298	34,430	56,810	343,637	160	64	3,576
1996-2005 Average		4,096	56,749	21,397	41,923	62,036	122	49	1,599
2006 as % of Avg.		714%	108%	161%	136%	554%	131%	131%	224%

The second consecutive commercial directed Stikine River Chinook drift gillnet fishery in recent years occurred in statistical weeks 18 through 23 of the 2006 season. The fishery was limited to the waters in District 108, as was the case in 2005, in order to target adult Stikine Chinook. Two-day openings occurred in each week and openings generally began on Monday and ended on Wednesday. One hundred eighteen vessels made landings of Chinook over the course of the fishery. The 2006 Stikine salmon gillnet fishery harvested a total of 29,056 large Chinook salmon through statistical week 29; of this total, 22,818 large fish were determined to be of Stikine River origin.

Figure 20. District 108 Gillnet Days Open

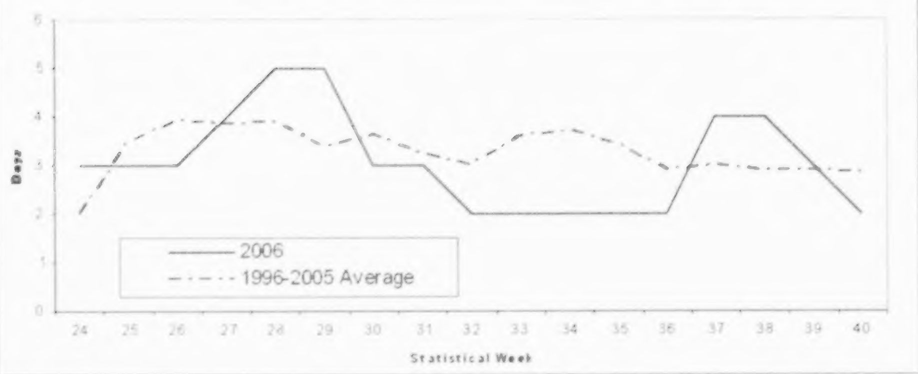


Figure 21. District 108 Gillnet Boats Fishing

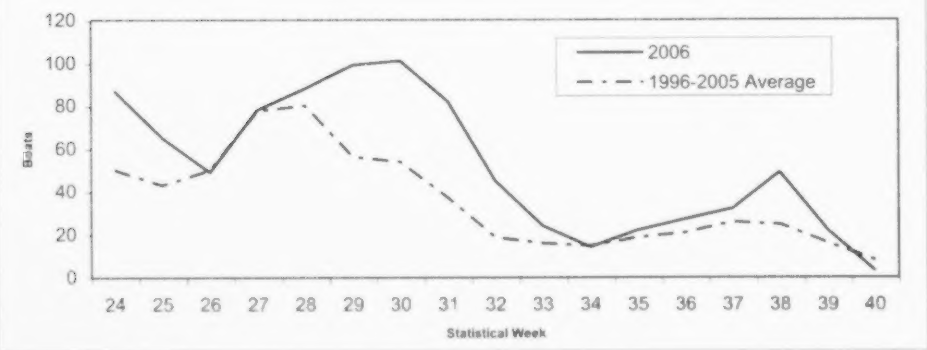


Figure 22. District 108 Gillnet Sockeye Catch

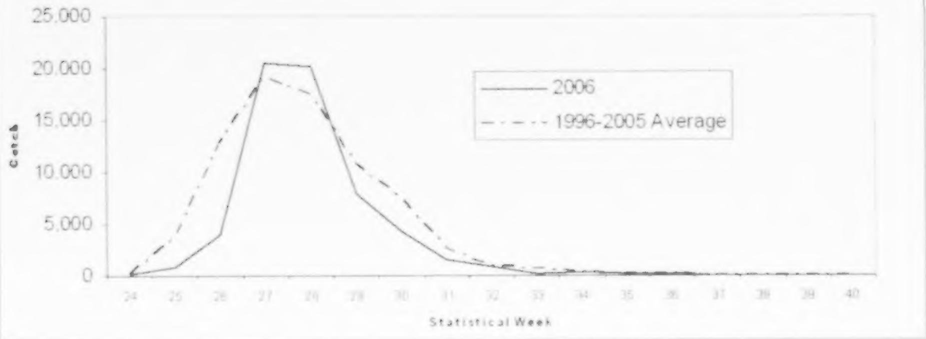


Figure 23. District 108 Gillnet Coho Catch

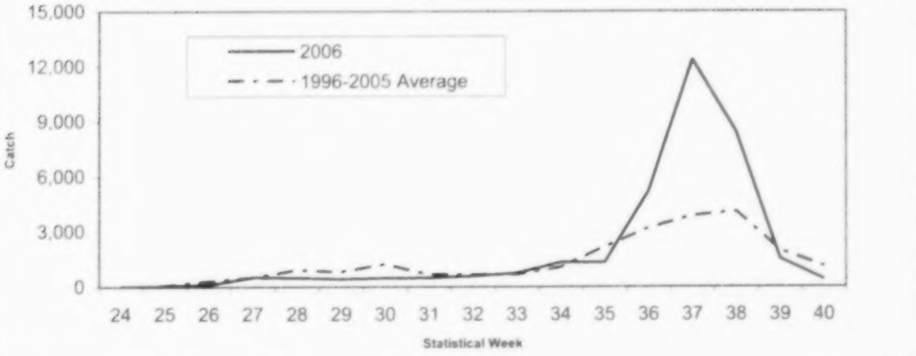


Figure 24. District 108 Gillnet Pink Catch

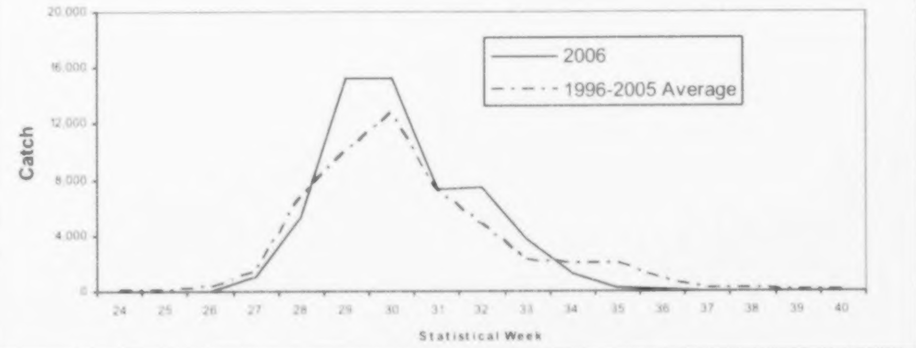
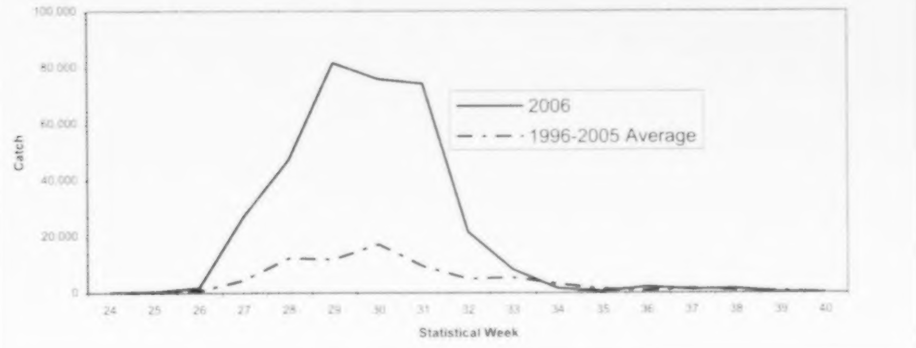


Figure 25. District 108 Gillnet Chum Catch



Harvest sharing of Stikine sockeye stocks is based on inseason abundance forecasts produced by the Stikine Management Model (SMM) (Table 8). The marine and inriver catches of planted Tuya fish were estimated from analysis of otoliths for thermal marks. Egg diameter analysis of inriver catches was used to estimate the relative abundances of Tahltan and Mainstem fish to Tuya fish in the Stikine River. The historical average weekly stock compositions were used to estimate the harvests of Tahltan and Mainstem Stikine sockeye salmon stocks in marine harvests. Based on these analyses and ratios, the Sumner Strait fishery (subdistricts 106-41 & 42) harvested 25,000 Stikine sockeye salmon, 43% of the total sockeye harvest in those subdistricts. The Clarence Strait fishery (subdistrict 106-30) harvested an estimated 2,000 Stikine sockeye salmon, 7% of the harvest in that subdistrict. It is estimated that the District 108 fishery harvested 51,000 Stikine fish, 84% of the total sockeye harvest in that area. With 39 of 48 federal harvest permits reporting the current sockeye subsistence harvest for the Stikine River is 348 fish; the subsistence cap for the river is 600 sockeye salmon. An estimated 78,000 Stikine sockeye salmon were harvested in commercial gillnet fisheries from both districts, representing 51% of the total sockeye catch. Of these Stikine sockeye salmon, an estimated 42,000 fish were produced by the joint U.S./Canada fry-planting projects on the Stikine River.

Preliminary postseason run reconstruction estimates are not yet available (Table 9) but will differ from the inseason management model estimates (Table 8)

Table 8. Weekly forecasts of run size and total allowable catch for Stikine River sockeye salmon as determined inseason by the Stikine Management Model, 2006.

Stat.	Start	Forecast		TAC		Cumulative Catch[c]	
Week	Date	Run Size[a]	TAC	U.S.	Canada	U.S.	Canada[b]
25	6/18	179,179	122,940	61,470	61,470	5,380	
26	6/25	179,179	122,940	61,470	61,470	10,002	139
27	7/02	179,179	122,940	61,470	61,470	30,510	4,435
28	7/09	235,703	177,170	88,585	88,585	56,621	39,872
29	7/16	275,135	215,443	107,772	107,772	67,565	67,924
30	7/23	324,941	282,890	141,445	141,445	74,388	89,636
31	7/30	286,251	236,848	118,424	118,424	75,342	91,855
32	8/06	291,550	245,189	122,594	122,594	78,203	101,350
33	8/13	298,499	249,520	124,760	124,760	78,552	101,400
34							

[a] U.S. forecasts were as follows: the preseason forecast was used for weeks 25, 26, and 27; the lower river commercial fishery CPUE data for the remainder of the sockeye season. (Canada independently generates forecasts that may use different criteria in some weeks.)

[b] Cumulative catch for Canada does not include approximately 100 Tuya ESSR fishery catch.

[c] Cumulative catch only includes catches through SW 33.

Table 9. Preliminary post season Stikine River run reconstruction, 2006

> *Due to the weather-related cancellation of the Transboundary Technical Committee meeting the preliminary Stikine River sockeye salmon run reconstruction is not available at this time.*

Taku River Area Fisheries

The traditional area District 111 commercial drift gillnet fishery salmon harvest totaled 11,240 Chinook, 134,691 sockeye, 59,270 coho, 185,102 pink, and 381,828 chum salmon (Table 10). Harvest of Chinook, coho, pink and chum salmon was 281%, 244%, 187% and 137% of the ten-year (1996-2005) averages, respectively. The harvest of sockeye salmon was 83% of the ten-year average. Hatchery stocks contributed significantly to the harvest of both sockeye and chum salmon, and minor numbers to the harvest of other species.

Table 10. Weekly salmon harvest in the Alaskan District 111 traditional commercial drift gillnet fishery, 2006.

Statistical Week	Start Date	Chinook[a]	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days[b]
21	21-May	1,108	0	0	0	0	43	2	86
22	22-May	4,134	8	0	0	1	54	3	162
23	4-June	3,280	114	1	0	489	55	2	110
24	11-Jun	1,044	6	0	0	299	44	1	44
25	18-Jun	1,101	1,294	12	0	3,121	45	3	135
26	25-Jun	180	1,934	195	1,370	16,252	41	3	123
27	2-Jul	231	8,379	330	23,766	109,156	74	4	296
28	9-Jul	103	6,283	1,279	26,724	54,331	72	4	288
29	16-Jul	19	4,901	465	13,417	57,075	55	4	220
30	23-Jul	10	16,728	793	31,641	64,909	65	4	260
31	30-Jul	4	13,871	916	27,546	43,379	74	3	222
32	6-Aug	10	29,266	3,028	48,777	22,998	78	4	312
33	13-Aug	2	15,586	1,377	8,384	2,156	45	4	180
34	20-Aug	7	20,341	5,450	3,261	2,983	58	4	232
35	27-Aug	1	10,374	8,330	225	1,193	46	4	184
36	3-Sep	2	3,559	11,029	0	1,291	49	4	196
37	10-Sep	1	1,821	14,024	0	1,424	37	4	148
38	17-Sep	0	218	10,864	0	745	35	7	245
39	24-Sep	0	6	760	0	53	8	7	56
40	1-Oct	3	3	417	0	9	5	7	35
41	8-Oct	0	0	0	0	0	0	7	0
42	15-Oct	0	0	0	0	0	0	4	0
Total		11,240	134,692	59,270	185,111	381,864	161	89	3,534
1996-2005 Average		3,997	161,341	24,263	98,832	278,442	167	55	3383
2006 as % of 10 Year Avg.		281%	84%	244%	187%	137%	96%	162%	104%

[a] Chinook salmon catch includes Harvest Code 411

[b] The days open listed [illegible] this table reflect open fishing periods for all waters of District 11 except Speel Arm THA (111-33). Taku Inlet (111-32) [illegible]en for two days each week during weeks 30-32 and three days in week 33

The Speel Arm Terminal Harvest Area (THA) was open for 19 days in SW33 through SW37 to target returning DIPAC Snettisham hatchery sockeye. The harvest from the Speel Arm THA contributed an additional 19 Chinook, 127,746 sockeye, 720 coho, 6,890 pink, and 1,115 chum salmon to the common property drift gillnet fishery in District 111 in 2006.

In 2006, for the second time in 30 years under regulations established by the Alaska Board of Fisheries (BOF), the District 111 drift gillnet fishery was open for a directed Chinook gillnet fishery during statistical weeks 19 to 25 to target returning Taku River Chinook salmon. Management actions for the directed Chinook fishery were limited to time restrictions as the open area, which includes the Taku Inlet area of Section 11-B north of the latitude of Grave Point and east of a line from Point Arden to Point Bishop, remained the same throughout the fishery. New regulations adopted at the 2006 BOF meeting in Ketchikan established a minimum mesh size of seven inches for the directed Taku River Chinook fishery. The US Allowed Catch (AC) was determined by a Pacific Salmon Commission bilaterally agreed on formula based, during the early season, on the pre-season Taku Chinook salmon run estimate, and revised in-season based on the in-season run projection estimates generated from the Canyon Island mark-recapture program. The AC applied only to large Taku origin Chinook salmon, fish over 28 inches in length (660mm MEF). The U.S harvest of the Taku Chinook salmon AC will not count towards the SEAK AABM allocation. The US allowed catch was shared between gillnet, troll and sport fisheries, with no set allocation for each user group. The new regulations allow gillnetting May 1, through the third Sunday in June. This season, the Taku drift gillnet directed Chinook salmon fishery occurred between SW21 and SW28, although management emphasis shifted to sockeye salmon beginning with stat week 25. There was no initial US AC in 2006, based on a pre-season terminal run forecast of 64,150 large Chinook salmon. In stat week 20 the first in-season terminal run projection of 64,706 was announced. Using the in-season projection, the management objective switched from the upper end of the escapement goal range (55,000) to the midpoint of the escapement goal range (42,500) for large Chinook salmon. Thus, the revised allowable catch for U.S. and Canada was 15,803 Chinook salmon, of which the U.S. allowed harvest was 7,922 fish, and the Canadian allowed harvest was 7,881 fish. Weekly management decisions were based on Canyon Island fish wheel catches, run timing, fishery performance, and available AC. The lack of recent historic data did not allow for comparison with past fisheries. The total Taku River origin Chinook salmon harvest in District 111 drift gillnet fishery in 2006 was 10,525.

The total traditional area drift gillnet Chinook salmon harvest in District 111 in 2006 was 11,240 fish. The directed Chinook fishery between statistical weeks 21 and 28 accounted for 11,181 fish. Of these, 11,045 were large fish, of which 10,053 fish were determined to be of Taku River origin. The Chinook salmon harvest after stat week 28 was 59 fish that were largely of hatchery origin. As estimated by coded wire tag (CWT) analysis, Alaska hatcheries contributed approximately 612 fish, or 5.5% of the total 2006 District 111 Chinook salmon harvest.

Approximately 99.1% of the Chinook salmon were harvested from Taku Inlet and 0.9% were harvested from Stephens Passage. The Taku River stock assessment program's preliminary estimate of the above-border run-size is approximately 40,500 large Chinook salmon, 80% of the ten-year (1996-2005) average of 50,500. The escapement goal range is from 30,000 to 55,000 large Chinook salmon.

The total Taku River sockeye salmon run was estimated at 213,700 fish (Table 11). Based on the escapement goal midpoint of 75,000 wild Taku River sockeye, the TAC was 138,700fish. The U.S. TAC was 113,000 Taku River sockeye (81.5% of the TAC). It is estimated that the total U.S. harvest of Taku River sockeye salmon was 69,300 fish, 61% of the TAC. Sockeye salmon produced from a joint U.S/Canada fry-planting program at Tatsamenie Lake contributed an estimated 2,205 fish, or 1.6% of the total sockeye catch. Additionally, an estimated 59,000 Snettisham Hatchery sockeye salmon were harvested in common property traditional fisheries in District 111, of that total approximately 32,000 were harvested inside Port Snettisham.

The preliminary estimated above-border in-river wild Taku River sockeye run, based on mark-recapture estimates at Canyon Island, was 151,900 sockeye salmon. Subtracting the Canadian catch of 20,500 wild Taku River sockeye salmon the escapement of wild Taku River sockeye salmon was 131,400, 56,400 fish above the escapement goal of 75,000 fish.

Preliminary 2006 Taku River sockeye escapements for enumerated systems were approximately: Trapper Lake 25,000; King Salmon Lake 2,200; Kuthai Lake 1,000; and Tatsamenie Lake 22,300. Escapements of sockeye salmon to Port Snettisham systems were fair, with 4,159 counted through a weir at Speel Lake and the Crescent Lake sonar reported a net upstream count of approximately 11,500 fish, which was not separable by species. It is known that all species of Pacific salmon do enter Crescent Lake, however sockeye is the predominant species.

Table 11. Preliminary Taku sockeye salmon run reconstruction, 2006. {Estimates do not include spawning escapements below the U.S./Canada border.

	Taku[a]
Estimated Taku In-river Run	151,867
Estimated U.S. Catch Taku fish	59,634
Total Run	213,705
Escapement Goal	75,000
TAC	138,705
U.S. TAC	112,981
U.S. harvest share (catch/total TAC)	0.48
Canada TAC	36,098
from .18 of total TAC	25,725
from .20 of inriver run >100,000	10,373
Estimated Canada catch	21,371
Canada harvest share (cat/total TAC)	0.15

[a] United States and Canada TAC computations based on harvest sharing arrangement described in Annex IV, Chapter 1, (3)(b)(1)(i).

Coho stocks harvested in District 111 include runs to the Taku River, Port Snettisham, Stephens Passage, and local Juneau area streams as well as Alaskan hatcheries. The coho harvest of 59,300 fish was 244% of the 10-year (1996-2005) average. Approximately 88% of the coho were harvested in Taku Inlet (above the ten-year average of 81%); 10% were harvested from Stephens Passage and 2% were harvested from inside Port Snettisham. Alaskan hatchery coho salmon contributed 1,976 fish or 3% of the District 111 harvest. Weekly coho harvests were above average early in the season during weeks 25-29, again in week 32, and in weeks 34-38 the coho harvest averaged over 300% of the 10-year average. The SW37 harvest of 14,000 fish was the peak week of coho harvest for the 2006 drift gillnet fishery. For most of the season, weekly estimates of Taku River coho abundance indicated an above average run size. The inriver abundance estimate of coho escapement above Canyon Island of 173,900 was above average at approximately 173% of the 1996-2005 average of 100,600. The cumulative Canadian coho harvest was approximately 11,700 fish. The coho escapement for the Taku River was estimated to be approximately 123,200 fish, surpassing the minimum in-river goal of 38,000.

The District 111 pink salmon harvest of 185,111 fish was 187% of the ten-year (1996-2005) average. The escapement number to the Taku River was unknown; however, the number of pink salmon passing through the fish wheels at Canyon Island was used as an index of escapement. The 2004 (parent year) Canyon Island pink salmon fish wheel catch was 8,500. The 2006 Canyon Island pink salmon fish wheel catch of 21,700 was 172% of the 1986-2004 odd-year average.

The catch total of 381,864 chum salmon was 137% of the ten-year (1996-2005) average, and was comprised almost entirely of summer run fish (98%). The summer chum run is considered to last through mid-August (week 33) and is comprised mostly of domestic hatchery fish, with small numbers of wild stock fish contributing. Chum salmon returning both to DIPAC hatcheries in Gastineau Channel and to the DIPAC remote release site at Limestone Inlet contributed a major portion of the harvest, but quantitative contribution estimates are not available. Approximately 59% of the District 111 chum harvest was in Taku Inlet, 35% in Stephens Passage, and 1% inside Port Snettisham. The harvest of 7,700 fall chum salmon (i.e. chum salmon caught after week 33) was 222% of the ten-year (1996-2005) average. Most of these chums are probably of wild Taku and Whiting River origin. Escapement numbers to the Taku River are unknown; however, the numbers of fall chums passing through the fish wheels at Canyon Island were used as an index of escapement. The index number for 2006, 426 fall chums is 85% of the 1985-2005 average.

Several other fisheries in the Juneau area harvested Taku River salmon stocks in 2006. Personal use permits were used to harvest an estimated 1,000 Taku River sockeye salmon. The preliminary 2006 estimate of the Juneau area Chinook salmon sport fish catch is 3,100. A number of stocks are known to contribute to the Juneau area sport fishery, including those from the Taku, Chilkat, and King Salmon rivers, and local hatchery stocks, but the major contributor of large, wild mature fish was believed to be the Taku River. Of Chinook harvested in the Juneau area sport fishery, the preliminary estimate is that 2,400 were of Taku River origin based on coded wire tag analysis and maturity data.

Alsek River Area Fisheries

Although harvest sharing arrangements of Alsek salmon stocks between Canada and the U.S. have not been specified, Annex IV of the Pacific Salmon Treaty does call for a cooperative attempt to rebuild depressed Chinook and early-run sockeye stocks. Preseason expectations were for below average returns of sockeye and Chinook salmon. These expectations were based on parent-year escapements to the Klukshu River. The Alsek River commercial fishery opened on the first Sunday in June, statistical week 23 (June 4). The initial opening remained at 24 hours. The fishery was extended to 72 hours during statistical week 24 as initial sockeye salmon CPUE was almost triple the average. The opening for week 25 remained at 24 hours. Fishing time was extended to 48 hours for the last week of June and the first week of July before returning to one 24-hour period for the next two weeks of the season. Effort in the Alsek River became minimal from this point on. The fishery targeted coho salmon after mid-August and fishing times remained at three days per week for the entire coho salmon season. Although the Alsek River remained open through the third week in October, no effort was recorded after September 30.

The Dry Bay commercial set-gillnet fishery harvested 530 Chinook, 9,842 sockeye, and 701 coho salmon (Table 12). Minor numbers of pink and chum salmon were harvested. A test fishery was conducted on the Alsek River for Chinook salmon in 2006, and that fishery produced another 135 Chinook and 224 sockeye salmon, for a total harvest of 665 Chinook and 10,066 sockeye salmon. The Chinook salmon harvest was very near the

1996-2005 average, the sockeye salmon harvest was well below average and the second lowest harvest since 1988, and the coho salmon harvest was also well below average. Very little effort was recorded during the coho season due to market conditions and the coho salmon harvest was the second lowest in the last 10 years. The number of fishing days was 45. The total effort expended in the fishery was 248 boat-days, which was also below average.

Table 12. Weekly catch and effort in the U.S. commercial fishery in the Alsek River, 2006.

							Effort		
Statistical	Start	Catch							Permit
Week	Date	Chinook	Sockeye	Coho	Pink	Chum	Permits	Days	Days
23	4-Jun	67	128	0	0	0	14	1	14
24	11-Jun	382	1,765	2	0	1	15	3	45
25	18-Jun	40	483	0	0	0	12	1	12
26	25-Jun	18	1,673	0	0	1	12	2	24
27	2-Jul	16	1,830	0	0	1	13	2	26
28	9-Jul	4	1,033	0	1	0	12	1	12
29	16-Jul	1	1,462	0	1	0	11	1	11
30	23-Jul	1	643	0	0	0	6	2	12
31-33	30-Jul	1	634	0	0	0	4	5	20
34	20-Aug	0	71	16	0	0	3	3	9
35	27-Aug	0	68	49	0	0	3	3	9
36	3-Sep	0	42	172	0	0	4	3	12
37	10-Sep	0	5	127	0	0	4	3	12
38-39	17-Sep	0	5	335	0	0	5	6	30
40-42	1-Oct	Not Fished						9	0
Total[a]		665	10,066	701	2	3	19	45	248
1996-2005 Average		615	17,324	4,878	1	61	22	41	931
2006 as % of Avg.		108%	58%	14%	143%	5%	88%	109%	27%

[a] Totals include fish taken in test fishery prior to statistical week 24.

Southeast Alaska Chinook Salmon Fishery

The 2006 preseason Chinook salmon target harvest level was determined using the abundance index of 1.69 generated with the CTC model calibration #0604. The corresponding target harvest of 346,800 was identified using Table 1 of Chapter 3. The preliminary estimate of the 2006 Chinook salmon harvest by all Southeast Alaska fisheries was 431,667 fish (Table 13). The treaty harvest (total minus the add-on and terminal exclusion harvest) was 350,578 fish, 1.1% above the target harvest of 346,800.

Table 13. Chinook all-gear harvests[1] in Southeast Alaska, 1987 to 2006, and deviation from the ceiling for years for which there were ceilings. Harvests are in thousands.

Year	Total Harvest	Add-on and Exclusion Harvest	Target Treaty Harvest	Treaty Harvest	Deviation Number	Deviation Percent
1987	282.4	17.1	263.0	265.3	2.3	0.9%
1988	279.3	22.5	263.0	256.8	-7.8	-3.0%
1989	291.0	21.5	263.0	269.5	6.5	2.5%
1990	366.9	45.9	302.0	321.0	19.0	6.3%
1991	359.5	61.5	273.0	298.0	25.0	9.2%
1992	258.8	36.8	227.4	222.0	-5.4	-2.4%
1993	304.1	32.9	263.0	271.2	8.2	3.1%
1994	264.4	29.2	240.0	235.2	-4.8	-2.0%
1995	235.7	58.8		176.9		
1996	236.3	81.3		155.0		
1997	343.0	56.3		286.7		
1998	270.6	27.4	260	243.2	-16.8	-6.5%
1999	251.0	52.2	184.2	198.8	14.6	7.9%
2000	263.3	76.8	178.5	186.5	8.0	4.5%
2001	265.7	78.8	250.3	186.9	-63.4	-25.3%
2002	426.5	69.4	371.9	357.1	-14.8	-4.0%
2003	439.4	59.3	439.6	380.1	-57.4	-13.1%
2004	506.2	77.4	418.3	428.8	10.5	2.5%
2005	497.9	111.2[2]	416.4	386.7	-29.7	-7.1%
2006	431.7	81.1	346.8	350.6	3.8	1.1%

[1] The actual target harvest and deviation cannot be calculated until the CTC completes the postseason calibration.

[2] The 2006 exclusion harvest is preliminary pending genetic stock composition estimates of the District 108 and 111 fisheries.

Troll Fishery

The winter troll fishery harvested 48,919 Chinook salmon from October 11, 2005 through April 21, 2006. A total of 3,990 fish were from Alaska hatcheries with 3,279 fish counting toward the Alaska hatchery add-on.

Spring fisheries were conducted prior to the July general summer opening. The spring fisheries are designed to increase the harvest of Alaskan hatchery-produced Chinook salmon by allowing trolling in small areas close to the hatchery where these fish concentrate. Terminal fisheries are a portion of the spring fisheries and occur directly in front of hatcheries or at remote release sites. While there is no ceiling on the number of Chinook salmon harvested in the spring fisheries, the take of Treaty Chinook salmon is limited according to the percentage of the Alaskan hatchery fish taken in the fishery. The harvests in 2006 were: 977 fish in the terminal fisheries, 34,964 fish in the general spring fisheries and a preliminary estimate of 2,926 in the Taku and Stikine exclusion fisheries. A total of 29% (10,490) of the Chinook salmon landed in these fisheries were from Alaska hatcheries of which 8,781 counted toward the Alaska hatchery add-on.

In the 2006 summer season there were two Chinook salmon retention periods: July 1-12 and August 13-22. The fishery harvested 195,400 Chinook salmon of which 6,196 fish (3.2%) were from Alaska hatcheries (5,087 counting toward the Alaska hatchery add-on).

The total harvest for the troll fishery in the 2006 accounting year was 282,300 Chinook salmon, with 263,300 counting as Treaty harvest.

Net Fisheries

Harvests of Chinook salmon in the net fisheries have been incidental to the harvest of other species and only constituted a small fraction (<1.0%) of the total net harvest of all species. That is still true for the purse seine fishery. As a result of the February, 2005 signing of the transboundary rivers Chinook harvest sharing agreement the drift gillnet fisheries in SEAK regulatory Districts 108 and 111 are allowed to target Chinook salmon returning to the Stikine and Taku Rivers. In 2006, the net fisheries harvested approximately 72,580 Chinook salmon of which approximately 23,800 counted as Treaty harvest. These numbers are very preliminary at this time due to the ongoing genetic stock composition analysis that has not yet been completed.

Recreational Fisheries

The 2006 recreational fishery had an estimated preliminary harvest of 76,800 Chinook salmon of which 63,500 counted as Treaty harvest. The final total and Treaty harvest in the sport fishery for 2006 will be available in late fall of 2007.

Southeast Alaska Coho Salmon Fisheries

Attachment B of the June 30, 1999 U.S.-Canada Agreement relating to the Pacific Salmon Treaty specifies provisions for inseason conservation and information sharing for northern boundary coho salmon. In 2006, troll CPUE in Area 6 in the early weeks of the fishery averaged a record 45.4, well above the highest boundary area conservation trigger of 22. The mid-July projection of region-wide total commercial harvest was greater than the 1.12 million trigger for an early region-wide troll closure, specified in Alaska Board of Fisheries regulation and the PST conservation agreement.

The 2006 all-gear catch of coho salmon totaled 2.09 million fish of which 1.84 million (87%) were taken in commercial fisheries (Table 14). The troll catch of 1.36 million fish was well below the 10-year average of 1.65 million fish and accounted for a record 75% of the commercial catch. Catch and CPUE performance in the troll fishery was strong early in the season but declined in later weeks. Overall region abundance was well-below average, with fishery performance generally poorer in southern districts. Drift gillnet fishery performance was below average in most areas, however, fishwheel and test fishery catches indicated strong runs in some major systems in the northern and central portions of the region including the Chilkat, Taku and Stikine Rivers. Pink salmon runs were poor and seine effort was limited in most areas. The harvest of coho salmon in seine fisheries was the lowest since 1976 and only 24% of the 1990-2005 average. Yakutat returns appeared below recent averages and the set net catch was further constrained by limited fishing on outlying rivers due to high transportation costs. A very preliminary estimate of the Southeast Alaska sport catch of coho is 246,000 fish.

Wild production accounted for 1.55 million fish (85%) in the commercial catch compared with the 10-year (1996-2005) average of 2.07 million fish (80%). Of the estimated hatchery contribution of 264,300 fish, over 99% originated from facilities in Southeast Alaska. Escapement goal ranges were met or exceeded for all indicator stocks with goals. Escapements were strongest in larger river systems in northern Southeast and weakest in the southern part of the region where the aggregate Ketchikan area survey count and the escapement to Hugh Smith Lake were both below average, although within goal. Exploitation rates for indicator stocks were generally below average. The troll fishery exploitation rate for the Hugh Smith Lake stock was very close to average at 37%. However, net and sport fisheries exploited the stock at relatively low rates, resulting in an all-gear exploitation rate of about 52%, well below the long-term average of 66%. The 2006 region-wide summer troll coho fishery began on July 1 and ended on September 20, with closures during August 9-12 and August 23-27. The season was extended until September 30 in selected districts in the northern and central portions of the region.

Table 14. Coho salmon harvest in Southeast Alaska in 2006 by gear type (preliminary).

Gear Type	Harvest
Troll	1,362,900
Purse seine	114,300
Drift Gillnet	276,600
Set Gillnet	86,100
Sport (marine and fresh water)	246,000
Total	2,085,900

Preliminary 2006 Chinook and Coho Salmon Catches in Washington and Oregon Fisheries

The 2006 season was conducted under the renewed Annex IV arrangements of the Pacific Salmon Treaty. This report covers the fisheries that occur between Cape Falcon and the U.S./Canadian border. These fisheries are subject to the Chinook Individual Stock Based Management (ISBM) obligations contained within the 1999 Agreement and the Southern Coho Management Plan adopted in 2002.

Descriptions of the preseason planning process, various regional fisheries, their general management constraints, and preliminary estimates of landed catch are listed in the following subsections. Tables 1 and 2 contrast preseason projections of catches with the preliminary estimates of landed catch for Chinook and coho in the various 2006 fisheries of interest to the Pacific Salmon Commission. For historical perspective, catches for those fisheries since 1997 are also presented. Complete 2006 fishery catch reports (e.g., Puget Sound recreational catch estimates) and preliminary estimates of spawning escapements are not available at this time.

Preseason Planning

Southern U.S. regional management coordination occurs within the preseason Pacific Fisheries Management Council process commonly referred to as "North of Falcon". Within this process, participants evaluate the biological and social/economic consequences of options for the outside (ocean) and inside (Puget Sound and in-river) fisheries. The final product is a total fishery package that achieves both domestic and Pacific Salmon Treaty obligations as assessed by our domestic fishery regulation assessment models.

Chinook Salmon Management

Under the 1999 Pacific Salmon Treaty Agreement, Council fisheries are subject to the Individual Stock Based Management provisions of Annex IV, Chapter 3. These provisions require the adult equivalent harvest rate by all U.S. fisheries south of the U.S./Canada border to be reduced by 40% from the 1979-1982 base period for Chinook stocks failing to achieve escapements at or above established escapement goals. Fishing levels and patterns were also constrained to meet provisions of the U.S. Endangered Species Act (ESA) for threatened and endangered Chinook salmon stocks originating from Puget Sound and the Columbia River. The 2006 U.S. ocean fishery seasons in the area north of Cape Falcon, Oregon, were constrained primarily by management objectives for the Snake River, and lower Columbia River natural tule fall Chinook stocks. Puget Sound fisheries were constrained also by the need to meet management objectives for ESA listed Puget Sound Chinook, including the Puyallup River and Snohomish River management units.

Coho Salmon Management

All U.S. natural spawning coho management units defined by the Southern Coho Management Plan were forecasted to be in moderate or abundant status, so exploitation rate caps for U.S. fisheries on U.S. management units did not represent a constraint in planning southern U.S. mix-stock fisheries. For the 2006 season, as with seasons since 2003, the low status of the Interior Fraser management unit represented the primary stock of concern with an exploitation rate cap of 10% for the southern U.S. fisheries. In addition, seasons and quota levels for U.S. ocean fisheries were defined primarily by and the management objectives of lower Columbia River coho.

North of Cape Falcon Ocean Fisheries

Management objectives for Chinook fisheries in this area are to satisfy standards for ESA listed stocks, and to the extent possible, provide for viable ocean and in-river fisheries while protecting depressed Columbia River natural stocks and meeting hatchery fall Chinook brood stock needs. Lower Columbia River and Bonneville Pool hatchery fall Chinook have historically been the major stocks contributing to ocean fishery catches in the North of Cape Falcon area.

Catch quotas were specified by species for treaty Indian, Non-Treaty commercial and recreational fisheries for Chinook and coho salmon. Quotas for Chinook salmon in 2006 were a result of requirements to protect ESA-listed Snake River fall and lower Columbia River natural tule fall Chinook stocks. Quotas for coho salmon in 2006 were a result of requirements to constrain impacts on Interior Fraser and lower Columbia River coho management units.

Treaty Troll Fishery

The treaty troll fishery was constrained by a Chinook quota of 42,200 and a coho quota of 37,500. The season was comprised of a May/June Chinook directed fishery and a July 1 through September 15 all species fishery. The season concluded with a catch of 29,523 Chinook (70% of the quota) and 31,384 coho (84% of the quota).

Non-treaty Troll Fishery

Pre-season Non-Tribal troll had quota levels of 34,000 Chinook and 6,800 coho (with healed ad-clip). The preliminary estimates of non-Tribal harvest in the 2006 North of Falcon troll fishery are 27,194 Chinook, (80% of the quota), and 2,695 coho (40% of the quota). Some 20,907 Chinook were harvested in the May 1-June 30 fishery and the remaining 4,665 Chinook were harvested between July 15 and September 15. The coho catch represents harvest in a mark-selective fishery (healed adipose fin-clips).

Recreational Fisheries

Pre-season quotas for the recreational fishery were 31,000 Chinook and 73,200 coho (with healed ad-clip). Total catches for the ocean recreational fisheries north of Cape Falcon were 11,192 Chinook (36% of the coastwide quota) and 41,332 coho (56% of the coastwide quota). A description of the resulting season structure and catches by management area follows.

Columbia River Ocean Area (Including Oregon)

Ocean Area 1 (Columbia Ocean Area) opened for recreational all-species salmon fishing on Monday, July 3 with a quota of 36,600 coho and a pre-season guideline of 8,300 Chinook. The fishery closed on its automatic closure date, September 30. The catch estimates for Area 1 through November 15 are 2,280 Chinook (27%) and 24,850 coho (68% of the quota). The Chinook minimum size limit was 24 inches, with sub-area closures in the Columbia Control Zone and a closure between Cape Falcon and Tillamook Head beginning August 1.

Westport

Ocean Area 2 (Westport) opened for all-species recreational salmon fishing on Monday, July 3 (through Sept. 17) with a quota of 27,603 coho and a pre-season guideline of 18,100 Chinook. The Chinook minimum size limit was 24 inches. Grays Harbor Control Zone was closed beginning August 1. The catch estimates for Area 2 are 5,853 Chinook (32%) and 8,799 coho (32% of the quota).

La Push

Ocean Area 3 (La Push) opened for all-species recreational salmon fishing on Friday, June 30 with a quota of 1,889 coho and a pre-season guideline of 1,300 Chinook. The fishery closed on its automatic closure date, September 17, and reopened September 23 through October 8. The catch estimates for Area 3 through November 15 are 1,631 Chinook (125%) and 1,857 coho (98% of the quota). The Chinook minimum size limit was 24 inches.

Neah Bay

Ocean Area 4 (Neah Bay) opened for all-species recreational salmon fishing on Friday, June 30 with a quota of 7,058 coho and a pre-season guideline of 3,200 Chinook. The fishery closed on its automatic closure date, September 17. The catch estimates for Area 4 are 1,428 Chinook (45%) and 5,826 coho (83% of the quota). The Chinook minimum size limit was 24 inches.

Washington Coastal Terminal Fisheries

North Washington Coastal Rivers

Net and sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustment. The north coastal rivers net harvest (all by Tribal fisheries) includes catch for the Quillayute, Hoh, Queets, and Quinault rivers. The 2006 commercial net fisheries in north coastal rivers have harvested an estimated 4,491 Chinook and 13,069 coho through November 15. Recreational fishery harvest estimates are unavailable at this time.

Grays Harbor

Net and sport fisheries directed at salmon in Grays Harbor are implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustment. Harvest for Grays Harbor includes catch from both the Humptulips and Chehalis rivers through November 15. The 2006 Tribal net fisheries have harvested an estimated 2,563 Chinook salmon and 3,912 coho salmon. Non-Indian commercial fisheries have harvested 0 Chinook salmon and 649 coho salmon. Recreational fishery harvest estimates are unavailable at this time.

Columbia River Fisheries

Treaty-Indian and non-Indian commercial and sport fisheries for Chinook and coho in 2006 occurred during the winter/spring (February-June 15), summer (June16-July) and fall (August-October) periods. All fisheries were constrained by impacts on ESA-listed stocks. Winter/spring fisheries were primarily constrained by impacts on ESA-listed upper Columbia River, Snake River spring/summer Chinook and wild winter steelhead. Summer fisheries were constrained by impacts to ESA-listed Snake River sockeye and wild Snake River steelhead. Fall fisheries were constrained by impacts to ESA-listed wild Snake River and Coweeman fall Chinook.

Winter-Spring Fisheries

Non-Indian Commercial

The non-Indian winter commercial fishery was conducted as a selective fishery using large mesh gillnets and occurred during February 23 – March 15 and during May 16 – June 2, for a total of 11 fishing periods, which resulted in a total of 4,400 adipose fin-clipped Chinook harvested in mainstem fisheries and 7,900 Chinook in Select Area Fisheries (SAFE). SAFE harvest includes fin-clipped and non fin-clipped Chinook.

Recreational

The 2006 mainstem recreational fishery operated under selective fishery regulations. Over 87,000 angler trips resulted in 7,000 fin-clipped Chinook being landed. The fishery below Bonneville Dam opened January 1 - April 14 and May 17 – June 15.

Treaty Indian

The Treaty Indian fishery caught 8,038 spring Chinook for ceremonial and subsistence purposes. No commercial fishing periods were adopted in 2006.

Summer Fisheries

Non-Indian Commercial

A summer season fishery occurred during June 26 – July 31 for a total of thirteen fishing periods in 2006. A total of 4,800 Chinook being harvested. The fishery was non-selective for fin-clipped Chinook.

Recreational

The summer season below Bonneville Dam began June 16 and concluded July 31. An estimated 44,000 angler trips resulted in the harvest of 5,100 Chinook.

Treaty Indian

Treaty Indian summer season fisheries harvested 16,319 Chinook including commercial, ceremonial and subsistence catches.

Fall Fisheries

Non-Indian Commercial

Early fall mainstem fisheries consisted of Chinook salmon seasons that occurred during the month of August. Total Chinook catch was 10,700 fish.

Late fall mainstem fisheries were initiated on September 19 and completed on October 25 and included coho and Chinook target seasons. Open areas included most or all of Zones 1-5 with certain closed areas adopted to protect ESA listed Chinook, coho, and chum. Preliminary estimates of landings for the late fall season of the non-Indian commercial fishery were 28,400 coho and 15,300 Chinook. SAFE fisheries harvested 4,600 Chinook. The total non-Indian commercial harvest in the fall season including SAFE is 30,600 Chinook.

Recreational

The 2006 Buoy 10 fishery (from the mouth upstream to the Tongue Point/Rocky Point line) opened August 1 for Chinook, adipose fin-clipped coho, and adipose fin-clipped steelhead. For the season a total of 39,500 angler trips resulted in 1,700 Chinook and 3,900 coho being retained.

The mainstem Columbia River (from the Tongue Point/Rocky Point line upstream to H 39.5 Bridge at Pasco) opened for fall Chinook and coho on August 1. Non-adipose fin-clipped coho were released downstream from Hood River Bridge. In the lower Columbia River (downstream of Bonneville Dam) 87,600 angler trips resulted in 13,700 Chinook landed. The fishery closed September 14 and reopened October 4 and will remain open through December. Total fall Chinook harvest in recreational fishereries is estimated to be 23,200 fish.

Treaty Indian

The Treaty Indian fall commercial fishery consisted of seven weekly fishing periods from August 21 to October 6. Preliminary catch data indicate 78,300 fall Chinook were harvested, including commercial, ceremonial and subsistence catches.

Puget Sound Fisheries

Puget Sound marine fisheries of interest to the Pacific Salmon Commission in 2006 were regulated to meet conservation and allocation objectives for Chinook, coho, chum and sockeye salmon stocks, per Tribal-State agreement. For Puget Sound Chinook listed under the ESA, fisheries were managed according to the State and Tribal joint resource management plan, the Puget Sound Chinook Harvest Management Plan. This management plan defines limits to total exploitation rates for natural stocks and was determined by the National Marine Fisheries Service to be consistent with requirements specified under the ESA 4(d) Rule.

Release requirements were applied to many recreational and commercial fisheries for Chinook, coho and chum salmon, the latter to protect ESA-listed Hood Canal and Strait of Juan de Fuca summer chum.

Puget Sound fisheries were constrained by the need to meet management objectives for ESA listed Puget Sound Chinook, including the Puyallup River and Snohomish River management units. For the 2006 season, as with seasons since 2003, the low status of the Interior Fraser coho management unit represented the primary coho stock of concern with an exploitation rate cap of 10% for the southern U.S. fisheries.

Strait of Juan de Fuca Recreational

Recreational fishing regulations allowed retention of Chinook or coho with no adipose fin/ healed clips of the adipose fin beginning July 1 in the Strait of Juan de Fuca (Areas 5 & 6). The Chinook selective fishery was regulated by a catch quota of 3,500 landed Chinook, or a maximum season length of 61 days. Additional sub-areas were also closed, as with fishery in 2003 to 2005, with the intention of providing additional protection of local Chinook stocks. The Chinook selective fishery was closed after August 21 and the fishery continued through September 30 with Chinook non-retention. Areas 5 and 6 were also open to Chinook retention (non-selective) from February 16 through April 10 and from November 1 through November 30 with a 2 fish daily limit, 1 Chinook.

Recreational catch was estimated by creel survey and totaled 3,800 Chinook and 9,500 coho for the entire three month period. Catch record card estimates for salmon taken at times other than noted above are not yet available.

Strait of Juan de Fuca Net

Preliminary estimates of the 2006 catch in Strait of Juan de Fuca Tribal net fisheries are 795 Chinook and 1,891 coho salmon. These Chinook and coho catches were less than the preseason expectations of 950 Chinook and 7,200 coho.

Strait of Juan de Fuca Treaty Troll (Area 4B, 5, and 6C)

The preliminary estimates of the 2006 Strait of Juan de Fuca treaty troll fishery are 591 Chinook and 636 coho through November 15. The Tribal catch estimates from this area do not include catches from Area 4B during the May-September PFMC management period, which have been included in the North of Cape Falcon troll summary.

San Juan Islands Net (Area 6, 7 and 7A)

Preliminary estimates of the 2006 catch in San Juan Island net fishery directed at sockeye or chum salmon totaled 144 Chinook and 108 coho salmon for the non-Indian fishery, compared with pre-season expected landings of 1,139 Chinook and 2,429 coho. Tribal fishery landings from this area totaled 4,694 Chinook and 639 coho compared with pre-season expected landings of 2,986 Chinook and 8,848 coho.

San Juan Islands Recreational

The southern and southeastern (Rosario Strait) portions of this catch area were again closed in 2006 to protect migrating, mature Puget Sound Chinook salmon. The remaining area was opened for retention of Chinook and coho salmon from July 1 to September 30. Release of unmarked coho salmon was required for the months of August and September. The month of October was opened Chinook. Chinook retention also was allowed in the entire area from February 1 - March 31; Chinook retention was not allowed at other times. Recreational fishery harvest estimates are unavailable at this time. Additional subarea closures are described in the Washington State Sport Fishing Rules Pamphlet. Catch estimates for this area are not available at this time.

Inside Puget Sound (Areas 8-13) Recreational

Catch and angler effort estimates for these areas are not available at this time.

Puget Sound Marine Net (Areas 8-13)

To achieve conservation objectives for Puget Sound Chinook and coho, very limited commercial fishing opportunities directed at abundant returns of hatchery Chinook and both hatchery and natural returns of coho were planned for 2006. Area catch totals for 2006 were 61,700 Chinook and 127,000 coho compared to pre-season estimates of 49,700 Chinook and 198,100 coho.

Puget Sound Terminal Fisheries

Tribal net and sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustment. The Puget Sound rivers net harvest (all by Tribal fisheries) includes catch from river systems in the Strait of Juan de Fuca, Hood Canal , and Puget Sound. The 2006 Tribal commercial net fisheries in Puget Sound rivers have harvested an estimated 17,800 Chinook and 89,800 coho through November 15. Estimates of 2006 recreational fishery harvest are unavailable at this time.

Table 15 Preliminary 2006 landed CHINOOK catches for Washington and Oregon fisheries of interest to the Pacific Salmon Commission (nearest 100)

Fisheries	2006 Preseason 2/	2006 Preliminary Post-season	2005	2004	2003	2002	2001	2000	1999	1998	1997
Ocean Fisheries											
Troll (see text for quota information)											
Cape Flattery&Quillayute (Areas 3/4/4B) 3/	55,800	41,300(1)	57,500	73,400	72,400	61,400	35,700	16,200	40,500	20,300	19,000
Columbia R & Grays Harbor (Areas 1&2)	20,400	15,400(1)	19,600	11,700	19,000	32,300	14,300	1,700	4,400	300	1,600
Sport (see text for quota information)											
Neah Bay (Area 4) 4/	3,200	1,400	2,800	5,500	4,700	5,200	1,500	400		100	500
La Push (Area 3)	1,400	1,600	1,700	1,800	1,900	2,000	600	200	1,000	100	100
Grays Harbor/Westport (Area 2)	18,100	5,900	22,400	11,300	21,800	42,600	15,700	6,300	6,600	1,700	3,100
Col. R./Ilwaco (Leadbetter Pt. to Cape Falcon)	8,300	2,300	9,600	6,200	5,800	8,000	5,100	1,500	2,300	300	300
Inside Fisheries											
Sport											
Juan de Fuca (Area 5&6) 5/	3,500	3,800(4)	2,400	5,000(1)	5,100(1)	3,000(1)	4,100	1,600	1,400	2,200	12,200
San Juan Islands (Area 7)	4,600	Na	2,100(1)	2,300(1)	3,300(1)	3,800(1)	6,600	3,400	2,700	3,100	9,200
Puget Sound Sport (Areas 8-13)	27,600	Na	17,000(1)	19,900(1)	22,600(1)	19,000(1)	40,000	17,800	21,800	16,500	37,300
Puget Sound Rivers	8,700	Na	12,900(1)	6,600(1)	11,400(1)	14,000(1)	12,500	5,900	8,600	9,500	4,600
North WA Coastal Rivers	na	Na	400(1)	800(1)	800(1)	800(1)	1,000	700	0	0	0
Grays Harbor (Areas 2A-2D)	na	Na	400(1)	6,300(1)	1,300(1)	3,600(1)	3,800	2,300	100	1,700	1,100
Columbia River Sport 6/ - Spring	na	7,000	10,600	23,700	16,900	20,500	25,700	300	0	100	0
Columbia River Sport 6/ - Summer/Fall	na	28,300	38,800	53,900	68,100	44,300	24,600	13,100	8,100	4,900	9,100
Commercial											
North WA Coastal Rivers	na	4,500	11,700	14,000	9,900	12,400	8,700	5,300	8,300	9,400	6,600
Grays Harbor (Areas 2A-2D) 7/	na	2,600	2,600	3,600	900	1,500	6,100	4,700	2,000	4,400	9,800
Columbia River Net-Winter/Spring	na	20,300	13,900	41,200	29,100	59,600	69,400	18,200	3,900	4,400	10,200
Columbia River Net - Fall	na	130,000	161,500	189,900	196,000	176,100	129,200	65,400	85,700	49,900	74,400
Strait of Juan de Fuca(4B/5/6C) Net&Troll	10,300	1,400	500	5,200	1,100	2,400	900	700	1,000	900	1,200
San Juan Islands (Areas 6, 7 & 7A)	4,100	4,800	4,400	5,100	4,800	1,900	1,000	1,000	0	3,800	29,600
Puget Sound Marine (Areas 8 - 13)	49,700	61,700	57,800	40,900	59,400	73,500	89,300	66,100	67,700	41,300	32,800
Puget Sound Rivers	24,400	17,800	20,200	28,400	27,500	35,100	34,100	12,900	24,100	12,400	13,300

Table 15. Preliminary 2006 landed CHINOOK catches for Washington and Oregon fisheries of interest to the Pacific Salmon Commission.

Footnotes:

1/ Preliminary data. Estimates represent landed catch only and do not include non-retention mortality. 2006 estimates include catches from January 1 through November 15.

2/ This column shows the 2006 Chinook troll quotas (Non-Treaty troll quota 34,000 and Treaty troll quota of 42,200) as distributed by ocean area; the Recreational Chinook quota 31,000 is also shown as distributed by area specific guidelines.

3/ Includes Area 4B catch during the PFMC management period (May 1 - September 30); excludes Treaty troll catch outside PFMC period.

4/ Excludes Area 4B catch outside Council management period (Oct 1 - Apr 30)

5/ 2004-2006 catches represent summer-only, since CRC annual estimates are not yet available.

6/ Includes both Buoy 10, mainstem and tributary sport catch.

7/ Includes catch from the upper Chehalis (River+2A+2D) and Humptulips (River+2C).

8/ Catch estimates from creel. 2006 catches for July1-Sep30 Area 5, July 1- Aug 21 Area 6; since CRC annual estimates not yet available.

Table 16 Preliminary 2006 landed COHO catches for Washington and Oregon fisheries of interest to the Pacific Salmon Commission

Fisheries	2006 Pre-season /2	2006 Preliminary Postseason	2005	2004	2003	2002	2001	2000	1999	1998	1997
Ocean Fisheries											
Troll											
Cape Flattery & Quillayute (Areas 3/4) 3/	38,100	32,200(1)	24,100	62,700	11,800	17,900	58,800	21,800	33,800	8,100	16,900
Columbia R & Grays Harbor (Area 2)	6,200	1,800(1)	1,700	7,900	4,700	200	7,400	5,900	700	100	6,100
Sport											
Neah Bay (Area 4) 3/	10,100	5,800	10,200	29,400	19,700	8,400	17,900	11,600	5,400	8,100	1,500
LaPush (Area 3)	1,900	1,900	2,300	3,200	3,400	1,700	3,300	1,900	2,600	600	1,100
Grays Harbor (Area 2)	27,600	8,800	10,500	29,300	39,300	19,100	69,400	28,800	12,600	7,700	13,200
Col. R. (Leadbetter Pt. to Cape Falcon)	36,600	24,900	28,700	51,000	76,700	45,000	77,500	25,800	19,600	4,400	11,100
Inside Fisheries											
Sport											
Iuan de Fuca (Areas 5 & 6) 4/	38,300	9,500 (4)	30,700	47,300(1)	50,800(1)	39,800(1)	71,200	32,400	8,700	28,900	51,800
San Juan Islands (7)	2,900	na	1,000 (1)	1,500(1)	2,000(1)	3,300(1)	4,900	2,600	500	2,500	20,800
Puget Sound Sport (Areas 8-13 all year)	63,200	na	26,400 (1)	39,300(1)	48,700(1)	29,800(1)	246,600	94,400	37,400	52,700	104,200
Puget Sound Rivers	41,600	na	33,700(1)	35,800(1)	51,100(1)	37,600(1)	69,700	21,900	11,400	17,600	17,300
North WA Coastal Rivers	4,200	na	1,500(1)	1,600(1)	1,100(1)	1,500(1)	2,000	900	0	0	0
Grays Harbor (Areas 2A-2D)	9,600	na	3,300(1)	10,400(1)	12,600(1)	15,400(1)	21,700	6,900	900	1,200	300
Columbia River Buoy 10	8,300	3,800	6,900	15,100	54,400	6,200	132,000	21,500	8,900	3,200	20,400
Commercial											
North WA Coastal Rivers	43,400	13,100	87,200	46,800	49,600	71,800	69,300	30,100	45,500	20,000	4,200
Grays Harbor (Areas 2A-2D) 5/	32,600	4,600	25,700	22,500	18,300	21,100	18,800	16,700	14,600	14,500	5,600
Strait of Juan de Fuca (Areas 4B/5/6C) Net&Troll	8,100	2,500	1,700	8,100	2,800	6,900	5,300	2,500	1,400	1,900	1,000
San Juan islands (Areas 6, 7 & 7A)	11,300	800	3,500	22,900	9,000	3,700	700	1,600	0	2,000	10,400
Puget Sound Marine (Areas 8 - 13)	198,100	127,000	193,400	319,200	134,700	171,300	244,600	272,600	78,500	120,400	109,800
Puget Sound Rivers	97,600	89,800	106,900	211,800	108,300	121,600	136,200	131,800	28,000	32,000	21,400

Table 16. Preliminary 2006 landed COHO catches for Washington and Oregon fisheries of interest to the Pacific Salmon Commission.

Footnotes:

1/ Preliminary data. Estimates represent landed catch only and do not include non-retention mortality. 2006 estimates include catches from January 1 through November 15.

2/ This column shows the 2006 coho troll quotas (Non-Treaty troll marked coho quota 6,800 and Treaty troll quota of 37,500) as distributed by ocean area. Recreational marked coho quotas are as shown.

3/ Excludes Area 4B catch outside the PFMC management period (Oct 1 - Apr 30).

4/ 2004 - 2006 catches represent summer-only selective fisheries, since CRC annual estimates are not yet available. 2006 preseason estimate is for July-September period only and the preliminary postseason estimate is for Area 5 only.

5/ Includes catch from the upper Chehalis and Humptulips Rivers.

Preliminary Review of 2006 Washington Chum Fisheries of Interest to the Pacific Salmon Commission

This summary report provides a preliminary review of the 2006 chum fishing season and is subject to correction and revision as additional information becomes available. Washington chum fisheries in a number of areas, particularly in Washington Areas 7 and 7A, are still underway and some fish ticket data from recent weeks may not be in the catch reporting system as yet. The catch and run size information provided are based on preliminary data reported through November 20. This summary report addresses in detail only those fisheries of concern under the Annex IV, Chapter 6 of the Pacific Salmon Treaty. This includes mixed-stock fisheries in United States (U.S.) waters of the western Strait of Juan de Fuca (areas 4B, 5 and 6C), and the San Juan Islands (area 7) and the Point Roberts area (area 7A). Other chum fisheries in Washington waters are primarily terminal area fisheries targeting their harvest on runs of local origin.

Mixed Stock Fisheries

Areas 4B, 5, 6C

As in previous years, the chum fishery in areas 4B,5,6C was restricted to Treaty Indian gill net gear only. The fall chum fishery opened the week of October 8, on a five days per week schedule. Starting October 15, the fishery schedule was expanded to seven days per week, in order to provide further opportunity to the limited number of participants. This fishery remained open until the conclusion of the fishery on November 11.

Incidental catches of chum salmon also occurred in fisheries for other species prior to the fall chum management period. A total of 155 chum were taken prior to September 16 (during net fisheries directed primarily at sockeye salmon). An additional 5 chum were harvested incidental to coho fisheries prior to the fall chum management period. 2,246 chum were harvested in chum fisheries after October 7, bringing the total chum catch to 2,406 (Table 17).

Areas 7 and 7A

Chum fisheries in Areas 7 and 7A were conducted under the provisions of the recently adopted Chapter 6 of Annex IV of the Pacific Salmon Treaty. More specifically, this chapter calls for a flat exploitation rate limit on chum fisheries in Johnstone Strait, and specifies a fixed harvest level in U.S. Areas 7 and 7A, unless a critically low level of abundance is identified for the runs returning through Johnstone Strait. The base harvest ceiling for the Areas 7 and 7A fishery, is 130,000 chum plus 46,000 chum from the accumulated historical difference, plus 15,000 chum from a 2005 shortfall, for a total target catch of 191,000 chum. Canada did not make a preseason forecast nor provide an in-season update of chum abundance, but indicated in-season, on the basis on Inside area catches, that the Inside area run size was not at a critical level. The new Chapter also specifies that chum fisheries in Areas 7 and 7A will not begin prior to October 10 and that, if the Fraser River chum run is updated in-season to levels lower than 900,000 fish, the U.S. will take actions to restrict fishery impacts on Fraser chum. The in-season

Fraser chum run size estimate was 2.7 million, so this provision was not activated in 2006.

Non-Treaty reef net fisheries targeting coho salmon were conducted following the end of Fraser Panel control, and continued open through the chum management period until mid-November.

A Treaty Indian gillnet and purse seine fishery opened at the start of the fall chum management period with a one-and-a-half day fishery that opened on October 10 and closed on October 11. The Non-Treaty fishery followed with three days of gillnet and purse seine fishing on October 12 to 14.

In the week beginning October 15, the Treaty Indian fishery fished for three-and-a-half days and the Non-Treaty fishery was open for three days.

From October 22, the Treaty Indian fishery was open continuously, until November 11. The Non-Treaty fishery was open for 3 days during the week of October 22, and for 5 days in each of the weeks of October 29 and November 5.

The Treaty Indian fishery reopened on November 16 and remained open through November 30.

Catches were relatively low through the first weeks of the fishery, slowly decreasing thereafter. Effort remained relatively low throughout the fishery primarily because of the availability of alternate opportunity as well as periods of inclement weather. In the last two weeks of November there was very little catch and effort. Chum prices have improved over the past several years, but this fishery did not meet the base catch ceiling in 2006.

There were 82 summer chum reported caught in areas 7 and 7A prior to September 16. These were taken incidental to sockeye fisheries. The total chum catch by all gears in areas 7 and 7A is reported, through late November, at 108,126, as of this date. It should be noted however that catch reporting from the third to las week may be incomplete, while catches (probably very small) from the least two weeks are not available at this time. (Table 18).

During the fall chum fisheries in Areas 7 and 7A, there was a reported bycatch of 618 coho salmon and no steelhead catch was reported. In Areas 4B, 5, 6C, there was a reported catch of 12 steelhead during this period.

Puget Sound Terminal Area Fisheries and Run Strength

Preseason forecasts for chum returns to Puget Sound were for a moderate fall chum run totaling approximately 2 million fish. Most Puget Sound chum runs have been updated in-season indicating overall returns that are significantly higher than forecasted pre-season. Current in-season estimates indicate that the actual return may be approximately 50% higher than forecast. Some Puget Sound chum fisheries are still underway, and additional in-season estimates of abundance may be made. At this time, spawning escapement estimates are not available.

Table 17. Preliminary 2006 Chum Harvest Report for Washington Reporting Areas 4B, 5, 6C

Areas 4B,5,6C	
Treaty Indian GN only	
Time Periods	GN
Through 9/15	155
9/16 - 10/7	5
10/8 - 10/14	0
10/15 - 10/21	551
10/22 - 10/28	1,643
10/29 - 11/4	0
11/5 - 11/11	52
Total	2,406

Table 18. Preliminary 2006 Chum Harvest Report for Washington Reporting Areas 7, 7a

Time Periods	Area 7				Area 7A			Area 7,7A
	PS	GN	RN	Area total	PS	GN	Area total	Total
Through 9/15	10	12	0	22	19	41	60	82
9/16 - 10/9	0	0	2,103	2,103	0	0	0	2,103
10/10 - 10/14	20,438	2,700	231	23,369	7,741	4,108	11,849	35,218
10/15 - 10/21	28,332	300		28,632	15,024	7,133	22,157	50,789
10/22 - 10/28	2,604	2,481		5,085	5,124	1,699	6,823	11,908
10/29 - 11/4	3,918	2,578		6,496	391		391	6,887
11/5 - 11/11	344	711		1,055			0	1,055
11/12 -11/18*	36	48		84			0	84
11/19 - 11/25	n/a	n/a			n/a	n/a		
1126 - 11/30	n/a	n/a			n/a	n/a		
Total	55,682	8,830	2,334	66,846	28,299	12,981	41,280	108,126
10/10 - 11/30 Period:Bycatch	Coho: 618; Steelhead: 0							

Preliminary Review of 2006 United States Fraser River Sockeye Salmon Fisheries

The 2006 Fraser River Panel season was the eighth implemented under the renewed Annex IV of the Pacific Salmon Treaty (PST). The treaty establishes a bilateral (U.S. and Canada) Fraser River Panel (Panel) that develops a pre-season management plan and approves in-season fisheries within Panel Area waters directed at sockeye and pink salmon bound for the Fraser River (Figure 1). In partial fulfillment of Article IV, paragraph 1 of the PST, this document provides a season review of the 2006 U.S. Fraser River sockeye salmon fisheries as authorized by the Panel. Catch and abundance information presented is considered preliminary.

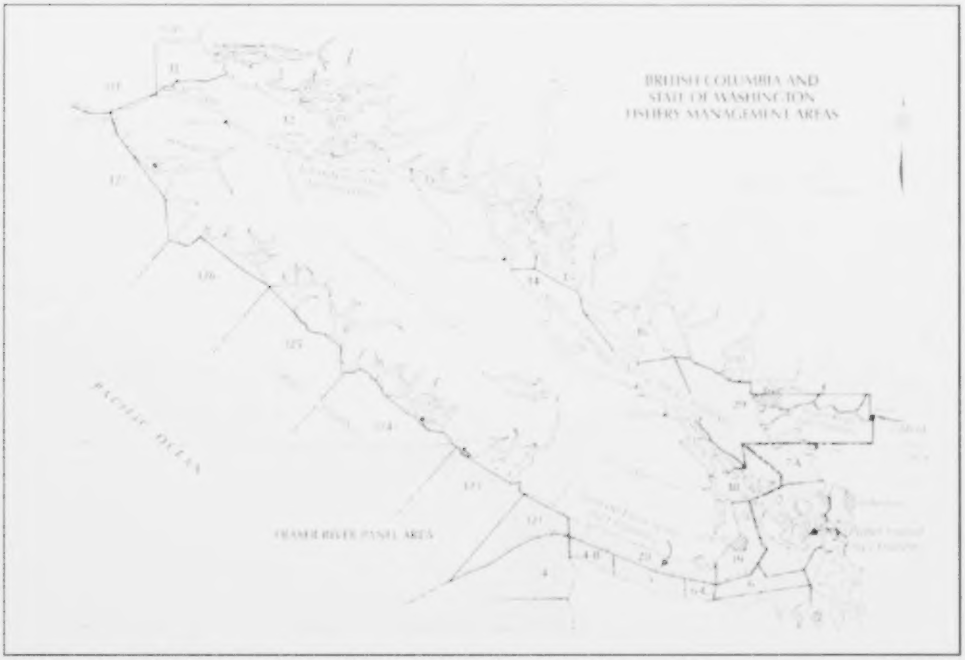


Figure 1. British Columbia and State of Washington Fishery Management Areas, 2006. The shaded area in the map represents the marine waters managed by the Fraser River Panel.

Pre-season Expectations and Plans

Forecasts and Escapement Goals

The Department of Fisheries and Ocean, Canada (DFO) provided the Panel pre-season run size forecasts and escapement goals by stock group (run) at various probability levels. Table 1 shows the 2006 pre-season sockeye forecasts at the 50 percent probability level, which represents the mid-point of the range of possible run sizes. These are the forecasts agreed upon by the Panel for use in pre-season fishery planning. Table 1 also provides the escapement goals for timing groups based on the pre-season forecasted abundance. The escapement goals for all timing groups will change in-season as the run size estimates change.

Table 19. 2006 Pre-season Fraser River sockeye Forecasts and Escapement Goals, by Stock Group.

	Early Stuart	Early Summer	Summer	Late	Total
Forecast of Abundance	84,000	1,303,000	7,158,000	8,812,000	17,357,000
Escapement Goal	82,500	521,000	2,863,000	3,525,000	6,991,500

Northern Diversion

Northern diversion is defined as the percentage of Fraser sockeye or pink salmon migrating through Johnstone Strait (rather than the Strait of Juan de Fuca) in their approach to the Fraser River. Diversion through Johnstone Strait was forecasted pre-season to be 67% for sockeye. For preseason planning purposes, northern diversion was modeled on a daily basis starting at 0% (100% migration through the Strait of Juan de Fuca) in late June and climbing to 84% in steady increments by mid-August.

Management Adjustment (MA) and Environmental Conditions

Management Adjustments reflect the expected difference between escapement estimates (DBE) at Mission (minus catch above Mission) and actual spawning escapement estimates. If the adjustments are adopted by the Panel, they are added to the gross escapement goal, effectively increasing the goal for an impacted run. For 2006, the Management Adjustment was modeled using discharge and temperature predictor variables, and for late runs included consideration of predicted upstream migration timing. Table 2 provides the pre-season projected DBE's and MA's that were used for planning fisheries. In-season management adjustments use MA models that are based on measured and forecasted temperatures and discharges, and run migration timing.

Table 20. 2006 Pre-Season Management Adjustments

Early Summer		**Summer**		**Lates**	
Difference Between Estimates	**Management Adjustment**	**Difference Between Estimates**	**Management Adjustment**	**Difference Between Estimates**	**Management Adjustment**
34%	264,000	5%	143,000	31%	1,485,000

Run Timing

Run timing is temporal information about the presence of a salmon stock in a specific area during the time the stock is migrating through that area. Run timing is an important variable when planning fisheries and predicting run size in-season. The following Area 20 50% dates (the dates when 50% of the stock or run group is forecasted to have passed through Area 20) were predicted pre-season for the major Fraser sockeye run groups.

Table 21. 2006 Area 20 Pre-Season 50% Run Timing Dates

Run Group	Area 20 50% Run Timing Date
Early Stuart	July 3
Early Summers	August 1
Summers	August 9
Birkenhead	August 14
True Lates	August 15

U.S. Total Allowable Catch (TAC)

Pre-season, the U.S. TAC was established at 1,312,000 sockeye. To the extent practicable, the U.S. TAC was to be harvested proportionally to the total TAC's across all of the Fraser sockeye stock management groups (Early Stuart – 0; Early Summers – 75,000; Summers – 625,000; and Lates – 612,000).

Pre-Season Management Plans

During the preseason planning process, the Fraser Panel evaluates and adopts management approaches for Fraser sockeye and pink salmon that address conservation, and harvest objectives for each major stock group. The Fraser River Panel develops fishing plans and in-season decision rules with the objective to meet management goals. Managing Fraser River sockeye salmon involves a trade-off between catching abundant stocks and meeting escapement objectives for less abundant stock groups.

In 2006 the Panel adopted a management plan that recognized that fishing opportunities would be constrained by the relatively low available TAC for Early Summer runs at the beginning of the season, and the potential for low availability of sockeye to the U.S. fisheries later in the season, due to high diversion through Johnstone Strait. There was no TAC predicted to be available for Early Stuart sockeye in 2006, and commercial fisheries were not contemplated on this timing group. It was expected that the Early Stuart runs would be monitored in-season with regular run size assessments starting in late June.

The early entry behavior of late run sockeye, observed in recent years, which results in an apparent high loss of fish prior to reaching the spawning grounds, was expected to continue in 2006. A significant management adjustment was planned for pre-season to account for this anticipated loss of Late run fish. However, a more flexible approach to determining spawning escapement targets was expected to still provide for significant fisheries on late runs, given the large forecast returns.

The Panel developed a pre-season fishing plan that balanced the competing objectives of maximizing the available Summer and Late run catch (which made up the bulk of the TAC) and meeting the escapement objective for Early Summer runs. For the U.S. fisheries this meant that sockeye openings would likely begin during the last week of

July, but be constrained to limited openings due to the relatively low Early Summer run TAC. After the second week of August, Early Summer runs were expected to have largely migrated through the U.S. fisheries and a more aggressive fishing schedule was anticipated. An approximate U.S. pre-season fishing schedule was developed based on these expectations. The TAC limitation for the Early Summer runs also meant that it was unlikely that either party could fully achieve its total allowable TAC.

In-Season Management

In-season, the Pacific Salmon Commission staff analyzes a variety of information to produce best estimates of diversion, management adjustments, run-timing, abundance, and harvest by stock group. These estimates are created using stock ID information, test fishing data, counts of escapements past Mission, harvest data and environmental information.

Run Assessment

The final in-season abundance estimates (Table 22) indicate that most stock groups came back lower than pre-season expectations, and much lower for the Summer and Late runs, that were predicted to make up the bulk of the abundance in the 2006 sockeye returns. Based on the final in-season abundance estimates, the Summer runs returned at only 30% of expectations, the Late runs at 59% of expectations, and the total sockeye return for 2006 was only 50% of the pre-season prediction.

The 2006 Fraser sockeye returns were also somewhat later timed for all of the stock groups, and a relatively high northern diversion rate was observed later in the season. Table 23 provides the pre-season timing expectations and the final in-season estimates of Area 20 50% run timing dates. The deviations in timing from pre-season expectations ranged from 4 days later than forecast for the late runs to eight days later for the Early Summer stock group. These later return timings and resultant fishery delays were not nearly as late as what was observed in 2005. However, similar to 2005, the poor early showing of most of the timing groups made distinguishing between late timing and low abundance difficult until most of each run had been accounted for through test fisheries and/or escapement at Mission.

Table 22. Comparison of pre-season vs. in-season abundance estimates for Fraser River Sockeye Salmon by Stock Group (run).

Stock Group	**Pre-Season 50% Probability Forecast**	**Final In-Season Run Size Estimate**	**Comparison: In-Season vs.** 0Pre-Season Forecast
Early Stuart	84,000	70,000	83%
Early Summer	1,303,000	1,450,000	111%
Summer	7,158,000	2,000,000	30%
Late	8,812,000	5,215,000	59%
Total	17,357,000	8,735,000	50%

Table 23. 2006 Preliminary 50% Run Timing Date in Area 20

Run Group	Pre-season 50% Run Timing Date	In-season 50% Run Timing Date
Early Stuart	July 3	July 7
Early Summers	August 1	August 9
Summers	August 9	August 14
Lates	August 15	August 20

Season Description

Week ending July 29

Relatively low impact U.S. treaty Indian fisheries commenced in Areas 4B/5/6C on July 28th, four days later than provided for in the pre-season fishing plan. The Early Stuart run was updated to about 70,000 sockeye with run timing a little later than expected. Preliminary Early Summer run assessments suggested that this stock grouping was also tracking somewhat later than normal, and possibly lower in abundance than forecast.

Week ending August 5

Treaty Indian fisheries in Areas 4B/5/6C continued open throughout the week, however effort and catches in the fishery remained relatively low. The Early Summer run appeared to be returning somewhat later than normal and its abundance appeared to be tracking similar to forecast levels. It was too early to assess the abundance for the summer runs, but there were indications they also may have been returning later than expected.

Week ending August 12

The Early Summer run size appeared to be tracking about as forecast, but some concerns were emerging for the abundance of the Summer run sockeye, particularly for the poor showing of the Quesnel stock. Treaty Indian fisheries in Areas 4B/5/6C continued open throughout the week. U.S. fisheries in Areas 6, 7, and 7A also opened this week, 7 days later than the pre-season fishing plan. The Areas 6/7/7A treaty Indian fishery was open for slightly less than one day (17 hours) on August 6th. The non-Treaty fishery was also opened for shorter than normal hours (10 hours) on August 7th. Based on continued good migrations of fish through the approach areas the Panel decided to extend the U.S. fisheries in Areas 6/7/7A through the latter part of the week. Non-treaty fisheries were open again on August 9th for 16 hours. Treaty Indian fisheries resumed on August 10th and continued open for approximately 4 days through August 13th. The northern diversion rate for this week was estimated to be about 26%

Week ending August 19

Summer runs continued to show poor returns, especially the Quesnel component. The Panel downgraded the Summer run size estimate from a pre-season projection of 7,158,000 to 4,000,000 this week. Conversely, Early Summer runs continued to show good abundance and the run size estimate was increased from 1,303,000, to 1,700,000 sockeye. Based on these run sizes and remaining available U.S. TAC, the Panel agreed to continued U.S. fisheries throughout this week. Treaty Indian fisheries in Areas 4B/5/6C remained open throughout the entire week. Non-treaty fisheries were open for two days in Areas 7/7A on August 14th and 15th, for 16 hours each day (except that the reef net fishery was open on August 14th and August 16th). Treaty Indian fisheries were open in Areas 6/7/7A for two days from August 16th through August 17th. Non-treaty fisheries were again opened on August 18th for one day (16 hours), except reef nets were open on August 19th. The diversion rate this week was estimated at about 50 - 60%.

Week ending August 26

The Early Summer run was still estimated to reach 1,700,000 sockeye. Concerns remained for the Summer run and the run size estimate was further downgraded to 3,000,000 sockeye. The late runs were now showing a strong abundance in the approach areas and in the fisheries, and there appeared to be a larger run than predicted. The Panel decided to increase the run size estimate for the Late runs to 10,000,000 sockeye. U.S. fisheries were opened early in the week, but as concerns grew for the Summer run abundance, and the run size was downgraded, fisheries were curtailed the later part of the week. At this point in the fishery there appeared to be no TAC left for Early Summer and Summer runs, but still a large TAC left for Lates. Treaty Indian fisheries in Areas 4B/5/6C were extended through noon on August 23rd, closed for two days, and then reopened on August 25th until August 29th. Treaty Indian fisheries in Areas 6/7/7A were open for two days on August 21st and 22nd. A Non-treaty fishery in Areas 7/7A was originally scheduled for August 22, but was canceled due to concerns for Summer run abundance and the lack of any remaining TAC. The northern diversion rate was estimated to be 80%.

Week ending September 2

Early in the week there seemed to be some improvement in migration of Summer run fish and the Panel upgraded the run size to 3,500,000, but later in the week the migration seemed to drop off considerably and projected escapements were not realized. The Panel then decided to downgrade the Summer run size to 2,500,000 sockeye. Similarly, the Early Summer migration appeared to be essentially complete and was not meeting the projected run size of 1,700,000, so it was downgraded to 1,400,000 sockeye. However, based on the assumption of remaining TAC for Late run sockeye, the Panel decided to extend the Treaty Indian fisheries in Areas 4B/5/6C throughout the week. Treaty Indian fisheries in Areas 6/7/7A were also re-opened for two days from August 28th through August 29th. Non-treaty fisheries in Areas 7/7A were re-opened for one day on August 30, with reduced hours for purse seine gear (3 hours).

Week ending September 9

Concerns started to emerge for the abundance of the Late runs. Assessments suggesting a run of 10,000,000 were dependent on a large number of Late run fish holding in the Gulf, and it was difficult to confirm this abundance. The Panel decided to lower the Late run size estimate to 9,000,000 early in the week and 7,500,000 by the end of the week, as test fishing catches and escapement into the river did not meet expectations. Early in the week there was still some Late run and total TAC remaining for the U.S. fishery. Also, given the high northern diversion rate, the U.S. fishery catch rate was quite low. Based on that status, the Panel decided to extend the Treaty Indian fishery in Areas 4B/5/6C throughout the week. The Treaty Indian fishery in Areas 6/7/7A was opened for one day on September 5th and 6th. The Non-treaty fishery in Areas 7/7A was opened for one day on September 6th, with reduced hours (3 hours) and area restrictions (Area 7A only) for purse seine gear. The Panel relinquished control of Areas 4B/5/6C as scheduled on September 9th.

With a reduced Late run size estimate by the end of the week there was no TAC remaining for either country and no additional U.S. fisheries were scheduled for the remainder of the season. By the end of the month, the Panel identified an in-season Late run size estimate of only about 5,000,000 sockeye. The Panel relinquished control over Areas 6/7 and most of 7A, as scheduled on September 16th. The Apex portion of Area 7A remained under Panel control, and remained closed to fishing, until October 1st.

Harvest

Between July 28th and September 9th the United States caught a total of 701,000 sockeye salmon in Panel area waters (Table 24)[1]. During this time period the treaty Indian fishery in Areas 4B/5/6C was open for a total of 39 days. The treaty Indian fishery in Areas 6/7/7A was open for approximately 13 days, and the Non-treaty fishery in Areas 7/7A was open for about 7 days, although many days were fished with reduced hours from what is normally scheduled, and assumed in pre-season planning.

Table 24. Preliminary estimates of 2006 U.S. catches of Fraser River sockeye salmon in Panel area waters.

	Treaty Indian	Non-Indian
Ceremonial and Subsistence	500	0
Catch Areas 4B/5/6C	23,100	0
Catch Areas 6/7/7A	461,500	215,900
Total	485,100	215,900
% of U.S. Catch	69.2%	30.8%

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[1] Catch data reported by PSC staff as of 10/27/06.

D. 2006 UPDATE REPORTS FOR SALMONID ENHANCEMENT PROGRAMS IN THE UNITED STATES AND CANADA

The Pacific Salmon Treaty between Canada and the United States requires that information be exchanged annually regarding operation of and plans for existing enhancement projects, plans for new projects, and views concerning the other country's enhancement projects. In 1988, a committee was formed to develop recommendations for the pre- and post-season and enhancement report formats. In summary, the committee proposed that:

- detailed reports on existing enhancement facilities of the type produced in 1987 be prepared every four years;
- the Parties will annually update information on eggs taken, fry or smolt released and adults back to the facility; significant changes in facility mission or production will be highlighted in narratives; and
- the Parties will provide periodic reports through the appropriate panels on new enhancement plans.

1. 2004 ANNUAL REPORT ON THE SALMON ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2007.

2. 2005 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2007.

3. 2006 ANNUAL REPORT ON THE SALMONID ENHANCEMENT ACTIVITIES OF THE UNITED STATES

This report had not been received by March 31, 2007.

4. 2005 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

In 2004, DFO initiated a review of SEP to determine if budget targets could be met without closing facilities and with least impact on objectives. 2004 brood egg targets were adjusted based on the review. Changes to production were targeted to minimize impact on fisheries and focused where stocks are strong and there are large hatchery surpluses. The changes were described in the 2004 Report on the Salmonid Enhancement Program in British Columbia.

There were no significant changes proposed for 2005 brood egg targets nor are significant changes anticipated for 2006. Small adjustments may be made to reflect current fecundity and rearing survival or to respond to local concerns. Enhancement Operations facilities will continue efforts focused toward production supporting conservation and sustainable fisheries and provide key support to other priority watershed and public involvement activities. DFO will continue working with hatcheries operated by communities under contract to DFO to meet shared objectives for conservation, public stewardship, community capacity development, habitat conservation and fish production.

Egg targets are determined pre-season for each stock. Difficulties in capturing broodstock because of environmental conditions or poor returns can limit success in achieving targets. Actual fecundity and in-hatchery survival rates will determine the number of juveniles released. Hatcheries may collect additional eggs to supply to other programs. These are not included in the hatchery egg target in the following tables but are included in the actual eggs taken.

The following tables detail enhancement from hatcheries and managed channels operated by DFO staff or contracted to community and native groups. Facilities may also enhance steelhead and cutthroat under the direction of the Province of BC; these species are not included.

Projects operated by volunteers are not included in the tables. Most public involvement projects are focussed toward stewardship, stock rebuilding or educational activities and do not release large numbers of fish. SEP also works with First Nations, industry, community groups and other government agencies to design and implement habitat restoration projects. Habitat related activities are not addressed here.

Northern B.C. Facilities

Chinook

Enhancement of chinook is primarily undertaken to supplement runs for commercial and recreational fisheries.

- Wannock chinook are enhanced in partnership with the Rivers Inlet North Coast Salmon Enhancement Association and the Wui'Kinuxv First Nation. Additional eggs were collected in 2005 at the request of the partners to ensure a large enough mark group.
- Two small runs of central coast chinook are enhanced opportunistically at Snootli hatchery; the number of eggs collected is dependent on brood stock availability and staff requirements.
- Remnants of Pallant Creek chinook from past transplant efforts (1986-88 broods) are also enhanced opportunistically. In 2005, only seven adults were kept as broodstock and all died during holding before they could be spawned.

		2004 Brood (millions)		2005 Brood (millions)		
		Target Release	Actual Release	Target Release	Egg Target	Eggs Attained
Chinook						
Kitimat	Hirsch	0.20	0.20	0.20	0.25	0.28
	Kitimat	1.40	1.27	1.40	1.70	1.72
Pallant	Pallant	0.04	0.00	0.04	0.05	0.00
Snootli	Atnarko	1.80	1.76	1.80	2.10	2.18
	Noosgulch	0.04	<0.01	0.04	0.05	0.00
	Nusatsum	0.09	0.06	0.09	0.10	0.07
	Salloomt	0.09	0.07	0.09	0.10	0.14
	Wannock	0.09	0.10	0.09	0.10	0.40
Total		3.75	3.46	3.75	4.45	4.79

Coho

Most coho production from northern and central hatcheries is from facilities operated by communities and volunteers.

- Coho smolts are released from Kitimat hatchery to support an in-river sport fishery and from Snootli Hatchery to support educational programs. The increase in coho production at Snootli, in partnership with the Central Coast Fisherman Protective Association, is to allow up to two mark groups for stock assessment and fisheries evaluation.
- Pallant Creek Hatchery is operated by the Haida Tribal Society as a cost recovery pilot hatchery. Production also contributes to North Coast commercial and recreational marine fisheries. Low returns resulted in the 2005 Pallant egg take only achieving 56% of target.
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		2004 Brood (millions)		2005 Brood (millions)		
		Target Release	Actual Release[1]	Target Release	Egg Target	Eggs Attained
Coho						
Kitimat	Kitimat	0.50	0.53	0.50	0.60	0.67
Pallant Pilot	Pallant	0.92	0.41[2]	0.92	1.08	0.62
Snootli	Salloomt					0.05
	Snootli	0.01	0.00[3]	0.01	0.02	0.05
Total		1.43	0.535	1.43	1.7	1.39

[1] Fry rearing for release as smolts in 2006.

[2] Pallant Release target include 540k smolts and 378k fry. Actual release includes 25k fry release plus anticipated release of smolts in 2006 (408k in pens); 527k smolts released in 2005.

[3] No smolts. 12k released as fry from classroom incubators.

Chum

Enhancement of chum is undertaken to supplement runs for First Nations, commercial and recreational fisheries.

- Pallant Creek Hatchery is operated by the Haida Tribal Society as a cost recovery pilot hatchery. Due to low returns, chum targets were not achieved for either Pallant (62%) or Mathers (0%) stocks.

		2004 Brood (millions)		2005 Brood (millions)		
		Target Release	Actual Release	Target Release	Egg Target	Eggs Attained
Chum						
Kitimat	Hirsch	1.00	0.88	1.00	1.20	1.21
	Kitimat	3.50	3.45	3.50	4.00	4.11
Pallant					5.00	0.00
Pilot	Mathers	4.28	0.00	4.28		
	Pallant	21.38	3.49	21.38	25.00	15.40
Snootli	Fish/Airport	1.66	1.59	1.66	1.80	1.92
	Salloomt	1.66	1.71	1.66	1.80	2.00
	Snootli	1.66	1.69	1.66	1.80	2.00
	Thorsen	1.66	1.61	1.66	1.80	1.94
Total		36.80	14.42	36.80	42.40	28.58

Pinks

There is no hatchery or managed channel production of pinks from North Coast facilities.

- Atnarko channel, though not managed, is kept open for pink salmon spawning. The habitat was also modified to support rearing opportunities for other species.

Sockeye

- Enhancement of sockeye from the Babine Lake Development Project (Pinkut and Fulton channels) is undertaken to supplement runs for First Nations, commercial and recreational fisheries. The project operates as a complex of manned spawning channels and controlled river flows. Even though the channels were loaded with target adults, low fecundities and somewhat higher than average pre-spawn mortality contributed to egg deposition lower than target.
- Enhancement is part of the recovery plan for Rivers and Smith inlet sockeye stocks. The original plan called for enhancement for one cycle, which concluded in 2004. Enhancement continued for 2005 to aid rebuilding of the weak 2000 brood cycle. Egg targets are adjusted in-season based on the abundance of returning adults. Due to recent declines, a small number of Atnarko sockeye eggs were collected in partnership with the Nuxalk First Nation. These fry will be marked and the returning adults will be used to assess fisheries management and escapement numbers.

		2004 Brood (millions)		2005 Brood (millions)		
		Target Release	Actual Release	Target Release	Egg Target	Eggs Attained
Sockeye						
Babine Lake	Fulton Chan	102.00	96.80	102.00	204.00	171.6
Develop't	Fulton R	45.00	62.30	45.00	300.00	242.0
Project	Pinkut Chan	43.50	79.8	43.50	87.00	76.6
	Pinkut Cr	5.70	23.9	5.70	38.00	19.3
	Pinkut Airlift	9.00	0.00	9.00	60.00	18.6
Snootli	Atnarko R					0.04
	Owikeeno Lake	0.44	0.48	0.44	0.55	0.58
	Long Lake	0.16	0.21	0.16	0.20	0.25
Total		205.80	263.49	205.8	689.75	528.97

South Coast Facilities

Chinook

Chinook in the South Coast are largely enhanced to support important recreational fishery opportunities in marine and freshwater areas.

- In spite of a successful Captive Brood Program, concerns remain for Puntledge summer run chinook. In 2005, a number of operational strategies were used as part of an integrated watershed plan to improve freshwater migration, survival to spawning, fertility and egg to fry survival. The results will be evaluated in 2006.
- Additional in-stream incubators have been funded through the Pacific Salmon Treaty to speed the re-establishment of Campbell River chinook (Quinsam Hatchery) into restored habitats. Incubators located in Elk Falls Channel and Second Island Channel are incubating 956,000 eyed eggs that will be migrating as unfed fry in the spring of 2006. Eggs for this group were taken from Quinsam River brood stock and initially incubated at Quinsam Hatchery, otolith marked, and transferred to the Campbell incubators at the eyed stage. This production is additional to the regular production for Quinsam Hatchery and is funded through the Pacific Salmon Treaty.
- Despite efforts made by Robertson Hatchery, the community and the First Nation to achieve egg targets for Nahmint chinook, no eggs were collected. There were fewer than 40 females in the system this year and unfortunately they all came in during flood conditions.
- Enhanced production of Squamish River chinook salmon will remain stable in 2005 to aid rebuilding of this population. Habitat restoration projects continue to be developed on the major spawning tributaries in this watershed and in the estuary. Discussions will continue on means of improving the effectiveness of hatchery and habitat restoration programs within the Squamish River watershed.
- A broodstock collection program was put in place to collect additional eggs from Cheakamus River chinook salmon in the fall of 2005. This program was partially funded by CN Rail and was a response to the caustic soda spill into the Cheakamus River that occurred in August 2005.

- Summer run Chinook returning to Chehalis Hatchery from previous transplant were unable to enter the hatchery due to low water levels in 2005 caused by the river channel moving away from the hatchery outflow. Summer run chinook eggs were transplanted from Chilliwack Hatchery to make up the shortfall.

- Fall run chinook were collected for stock assessment purposes only. Fall run chinook were abundant in the Chilliwack River, and hatchery egg targets were achieved without going off-site.

- A number of Lower Fraser tributaries support small, genetically distinct and indigenous populations of chinook. A small population of chinook salmon indigenous to the upper reaches of the Chilliwack River will continue to be focus for the enhancement program to ensure their conservation. It is extremely difficult to assess numbers and access adults for brood stock in the upper river where the small return has lots of room to hide and takes a concerted effort to obtain broodstock. Targets proposed are maximums and are unlikely to be achieved.

- Maria Slough chinook salmon existed in one side channel of the lower Fraser River. Habitat improvement and enhancement in partnership with the local First Nations have rebuilt the population from a low of 20 spawners to over 1,000. Nearby Wahleach Slough and Hope Sloughs have habitats suitable for this stock and are now receiving both habitat restoration and fish culture support to further improve this indigenous chinook population. In 2005, a modest increase in hatchery smolt releases were implemented to speed the re-establishment of this population into the restored habitats. The first adult returns of chinook salmon to Hope Slough were observed in the fall of 2005, when 50 chinook salmon were observed spawning on the recently restored spawning riffle in Hope Slough. Significant funds have been acquired by community partners to work on cooperative habitat restoration programs with DFO in both Maria Slough and Hope Slough during the summer of 2006.

- Additional Nicola chinook eggs were collected by Spius Cr Hatchery to off-set expected increased adult mortality due to high creek temperatures.

Chinook Production		2004 Brood (million)		2005 Brood (million)		
Hatchery	Stock	Target Smolt Release	Actual Smolt Release	Target Smolt Release	Egg Target	Eggs Attained
B Qualicum	B Qualicum	3.74	3.42	3.74	4.50	4.90
Capilano	Capilano	0.56	0.49	0.56	0.90	1.37
Chehalis	Big Silver			0.03	0.04	0.00
	Summer Red	0.39	0.55	0.39	0.50	0.40
	Harrison Fall	2.35	2.49	0.42	0.30	0.43
Chemainus	Chemainus	0.18	0.02	0.18	0.18	0.80
Chilliwack	Native Summer			0.05	0.08	0.01[3]
	Summer Red	0.41	0.48	0.41	0.50	0.50
	Chilliwack Fall	1.20	1.31	1.20	1.50	2.00
Conuma	Burman[1]	0.40	0.48	0.40	0.50	0.22
	Conuma	1.70	2.20	1.70	2.10	2.32
	Gold[1]	0.04	0.06	0.04	0.05	0.01
	Muchalat[1]	0.12	<0.01	0.12	0.15	0.02
	Sucwoa	0.04	0.03	0.04	0.05	0.01
	Tlupana	0.04	0.05	0..04	0.05	0.07
Inch	Maria Slough	0.07	0.05	0.10	0.15	0.15
	Stave	0.21	0.20	0.21	0.29	0.29
L Qualicum	L Qualicum	2.50	3.11	2.50	3.50	3.41
Nitinat	Nitinat	2.00	2.34	2.00	2.50	3.92
	Sarita	0.50	0.26	0.50	0.55	0.29
Puntledge	Punt Summer	2.00	0.83	1.80	2.40	0.83
	Punt Fall	1.55	1.60	1.55	2.00	1.81
Quinsam	Quinsam	3.15	2.90	3.15	4.63	4.83
Robertson	Nahmint	0.43	0.05	0.43	0.50	0.00
	Robertson	6.00	6.03	6.00	7.20	7.45
Shuswap	Shuswap Low	0.50	0.49	0.50	0.55	0.61
	Shuswap Mid	0.25	0.26	0.25	0.30	0.26
Spius	Coldwater[2]	0.05	0.59	0.05	0.09	0.10
	Nicola[2]	0.12	0.14	0.12	0.16	0.22
	Salmon[2]	0.07	0.08	0.07	0.12	0.09
	Spius[2]	0.05	0.06	0.05	0.09	0.11
Tenderfoot	Tenderfoot	1.20	1.05	1.20	1.40	1.37
	Cheakamus				0.00	0.01
Total		31.64	31.55	20.48	26.43	38.00

[1] with Gold R Public Involvement Project

[2] planned release in 2006 as yearling smolts

[3] One female and three males taken. Yield ~ 5,500 fertilized eggs

Coho

Enhancement of coho is largely undertaken to support hatchery mark-selective recreational fishery opportunities in South Coast marine areas and terminal marine and freshwater areas adjacent to hatchery facilities.

- South coastal and lower Fraser River systems experienced generally low returns of Coho this past fall. Many stocks also returned later than normal. Despite the poor returns, most hatcheries were able to achieve close to eggs targets for stocks enhanced for Mark Selective Fishery opportunities. The notable exception is Big Qualicum, which took less than half their target. This will affect local mark-selective fishery opportunities in 2008.

- A few community hatcheries also collect broodstock to provide potential opportunities for small hatchery mark-selective fisheries on local streams (Alouette, Kanaka, Seymour, Little Campbell, and Coquitlam in the Lower Fraser Area Chapman and Lang creeks on the Sunshine Coast and Fanny Bay and Quatse River on the Vancouver Island). Due to late returns and small escapements egg collection targets for Serpentine and Nicomekl were not met. These stocks are enhanced in a cooperative effort between community volunteers and Inch Creek hatchery. The eggs that were collected from these two streams are being held at the community hatcheries. The egg targets for Inch Creek and Norrish were increased to replace the lost production and shift some of the recreational effort for the 2005 brood only.

- Due to very high summer water temperatures, Puntledge River Hatchery lost a large number of its brood 2003 coho to stress and disease. This is expected to have an effect on the strength of the adult return in 2006.

- Production at Tenderfoot Hatchery shifted from rebuilding selected tributary stocks throughout the watershed to enhancing the Cheakamus (Tenderfoot) and Mamquam stocks to support a hatchery mark-selective fishery in the lower Squamish system. Some eggs were collected from upper Cheakamus River coho salmon as a response to the August 2005 caustic soda spill.

- Releases of fry into Big Qualicum River were discontinued, as supplementation of the natural habitat is not needed. Releases of fry into Puntledge River will be continued due to concerns about the effect of high water temperatures on spawners below Comox Lake.

- Robertson Creek collected additional 2005 coho eggs in anticipation of a funding partnership with the First Nation. The agreement is in process and should be finalized by the end of fiscal year.

Coho Production		2004 Brood (million)		2005 Brood (million)		
Hatchery	Stock	Target Smolt Release	Projected Smolt Release[1]	Target Smolt Release	Egg Target	Eggs Attained
B Qualicum	B Qualicum [2]	1.00	1.70	1.00	2.00	0.85
Capilano	Capilano [2]	0.63	0.64	0.63	1.50	1.53
Chehalis	Chehalis [2]	0.80	0.80	0.80	1.10	1.00
Chilliwack	Chilliwack [2]	1.20	1.15	1.20	1.40	1.55
	Elk Cr/LWFR	0.00	0.02	0.20	0.30	0.31
Conuma	Conuma	0.00	0.00	0.04	0.10	0.13
Inch	Inch [2]	0.15	0.16	0.15	0.19	0.23
	Nicomekl [2]	0.08	0.06	0.08	0.09	0.00
	Norrish [2]	0.15	0.15	0.08	0.10	0.20
	Serpentine [2]	0.08	0.06	0.08	0.09	0.00
	Stave [2]	0.23	0.17	0.23	0.28	0.27
Nitinat	Nitinat [2]	0.20	0.24	0.20	0.50	0.51
Puntledge	Puntledge [2]	0.60	0.20	0.60	0.90	0.74
Quinsam	Quinsam [2]	0.80	0.80	0.80	1.10	1.15
Robertson	Robertson [2]	0.60	0.50	0.40	0.48	1.06
Shuswap	Duteau	0.00	0.00[3]	0.00	0.07	0.06
Spius	Coldwater	0.07	0.08	0.07	0.15	0.11
	Deadman	0.03	0.04	0.03	0.04	0.03
	Salmon	0.03	0.07	0.03	0.17	0.14
Tenderfoot	Ashlu	0.04	0.04	0.00	0.00	0.00
	Cheakamus [2]	0.04	0.00	0.09	0.10	0.13
	Mamquam [2]	0.04	0.04	0.05	0.05	0.06
	Squamish	0.04	0.04	0.00	0.00	0.00
	Tenderfoot [2]	0.10	0.13	0.13	0.16	0.25
Total		7.47	7.07	6.69	11.64	10.09

[1] Fry rearing for release as smolts in 2006.

[2] Some or all are mass marked with an adipose clip for Mark Selective Fishery opportunities

[3] All released as fry

Chum

- Enhancement on Vancouver Island is to support commercial and First Nations fisheries. Channel deposition numbers are not yet available for Big and Little Qualicum channels.
- Supplemental funding is provided by the First Nation to maintain chum production at Chehalis Hatchery to provide an ESSR opportunity. In 2005, the Chehalis Band did not fund the program (5 million fed fry) and the additional eggs were not collected.
- Chehalis River hatchery continues to provide most of the chum salmon fry that are released into urban streams in the lower Fraser Valley that lost their chum salmon populations many years ago. Encouraging returns of chum salmon have established themselves in the Nicomekl River, Serpentine River, Brunette River and other urban streams as a result of these fry releases over the years from Chehalis Hatchery.
- Despite there being generally a lot of Chum around in the lower Vedder, there were low rack returns to the Chilliwack Hatchery and to the mid to upper Chilliwack watershed. The hatchery barely achieved sufficient eggs for a small production release and transplants to re-establish and rebuild chum salmon in many small streams, including Atchelitz and Luckakuck Creeks, located on the historic Chilliwack River floodplain that have been impacted by urban development.
- Due to adverse river conditions, low escapement levels and limited resources, Conuma Hatchery fell short of targets for all chum stocks. With the exception of Tlupana chum (~80% of target), only 40% or less of targets were attained.

Chum Production		2004 Brood (million)		2005 Brood (million)		
Hatchery	Stock	Target Fry Release	Actual Fry Release	Target Fry Release	Egg Target	Eggs Attained
BQualicum Chan	B Qualicum	54.00	24.99	54.00	125.0	n/a
Capilano	Capilano					0.06
Chehalis	Chehalis	6.00	6.16	6.00	6.40	3.20[1]
Chilliwack	Chilliwack	1.10	1.46[2]	1.10	1.20	1.73
Conuma	Canton	1.00	0.68	1.10	1.20	0.48
	Conuma	2.00	1.88	2.00	2.60	1.01
	Sucwoa	1.00	1.02	1.10	1.20	0.27
	Tlupana	1.00	0.93	1.10	1.20	0.81
Inch	Inch	1.00	0.81	1.10	1.20	1.20
LQualicum Chan	L Qualicum	38.0	28.97	38.00	62.0	n/a
Nitinat	Nitinat	35.00	35.32	35.00	42.0	47.74
Puntledge	Puntledge	3.60	2.98	3.60	4.00	4.36
Quinsam	Campbell R					0.34[3]
Tenderfoot	Tenderfoot	0.36	0.13	0.45	0.48	0.41
Weaver Chan	Weaver	2.70	1.58	0.27	4.13	3.56
Total		146.76	107.48	144.82	252.61	n/a

[1] Eggs taken for 1 million fed fry and 2 million unfed fry release.

[2] additional fry released to lower Chilliwack watershed creeks.

[3] Quinsam Hatchery is incubating chum eggs for transfer to volunteer projects.

Pink

- Production of East Coast Vancouver Island pinks at Quinsam Hatchery is undertaken to augment the commercial fishery and provide terminal recreational fishery opportunities.
- An additional 8.3 million eggs for southeast Vancouver Island projects on Mohun Cr, Casey Cr, Englishman R, Nile R, Puntledge R and Tsolum R are taken from Quinsam Hatchery in partnership with communities to rebuild pink populations and provide terminal recreational fishery opportunities.
- Fraser Pinks are present in significant numbers on the odd-years only. During 2005 both Chilliwack and Chehalis Hatcheries partnered with community groups to restore pink salmon runs in urban rivers that had lost those runs in past decades. Successful pink salmon spawning returns have been restored in the Alouette, Coquitlam, Kanaka and Seymour Rivers from these releases of pink salmon fry in past years.
- A broodstock collection program was put in place to collect pink salmon eggs from Cheakamus River and Indian River in the fall of 2005. This program was partially funded by CN Rail and was a response to the recent caustic soda spill into the Cheakamus River that occurred in August 2005. Cheakamus River pink fry will be released back into their river of origin in the spring of 2006 for conservation purposes. The Indian River pink fry will be reared in sea pens at the mouth of the Squamish River prior to release. Adult returns from both these releases will contribute to spawning returns and fisheries in the Squamish River watershed in the fall of 2007. The Cheakamus River Ecosystem Recovery Committee will be considering support for upgrading the Tenderfoot Hatchery program so that it could culture increased numbers of Cheakamus River pink salmon in the fall of 2007 as a conservation strategy for these populations.

Pink Production		2004 Brood (million)		2005 Brood (million)		
Hatchery	Stock	Target Fry Release	Actual Fry Release	Target Fry Release	Egg Target	Eggs Attained
Chehalis	Chehalis	off year		0.25	0.30	0.30
	Harrison	off year				0.603
	Weaver	off year				0.663
Chilliwack	Chilliwack	off year		0.00	0.00	[2]
Puntledge	Puntledge[1]	2.40	1.94	2.40	3.50	2.89
Quinsam	Quinsam	7.00	5.95	6.5	6.8	6.8
Tenderfoot	Cheakamus	off year		0.25	0.30	0.30
	Indian	off year		0.25	0.30	0.30
Weaver Chan	Weaver	off year		0.92	1.92	2.46
Total		9.40	7.89	10.57	13.52	14.51

[1] Eggs transferred from Quinsam River. Returns of previous transfers were left to spawn naturally in the Puntledge River.

[2] Assisted with the collection of pinks for Seymour CEDP and Nicomekl PIP projects. Also incubating Cheakamus Pinks.

[3] Eggs collected for eyed egg and fry transplant to North Fraser streams

Sockeye

Sockeye Production continued to focus efforts on maintaining production supporting stock conservation and sustainable fisheries.

- The Cultus Lake Sockeye and Sakinaw Lake Sockeye Recovery Plans continued to be implemented. Some 2005 brood fry will be reared to maturity at Rosewall Cr Hatchery for captive brood purposes. The remainder of the Cultus sockeye collected will be incubated and reared at the Pitt Satellite isolation facility for release at multiple stages to Cultus Lake. The remainder of the Sakinaw Sockeye collected were incubated and reared at Ouillet Creek Hatchery before being released to Sakinaw Lake.
- Eggs of both stocks were also collected from captive brood adults which matured in 2005. Most of the eggs (800K) collected were from captive brood adults.
- Shuswap Hatchery, in partnership with local First Nations, is enhancing both Upper Adams and Okanagan sockeye. Upper Adams is enhanced only on the cycles where sufficient returns are expected to justify effort. Enhancement was proposed for 2005 brood but due to poor returns, was not implemented.
- Horsefly Channel was not operated, as it was a dominant cycle, so as not to exceed the optimal rearing capacity of Quesnel Lake.

		2004 Brood (million)		2005 Brood (million)		
Hatchery	Stock	Target Fry Release	Actual Fry Release	Target Fry Release	Egg Target	Eggs Attained
Gates Chan	Gates	4.50	7.56	4.50	9.00	n/a
Horsefly Chan	Horsefly	17.50	not operated			not operated
Nadina Chan	Nadina	3.50	9.82	3.50	7.00	n/a
Weaver Chan	Weaver	46.80	28.36	46.80	65.00	69.57
Pitt Satellite	Upper Pitt	2.00	1.53	2.00	2.50	2.50
	Cultus	0.75	0.69[1]	0.70	1.00	0.70
Rosewall/Ouillet	Sakinaw	0.13	0.26	0.18	0.19	0.13
Shuswap	Adams Up	Sub-dominate Cycle		1.00	1.20	0.00
	Okanagan	1.30	1.21	0.90	1.00	1.70
Total		76.48	49.43	77.13	121.89	n/a

[1] An additional 56 thousand 2004 brood Cultus Lake sockeye are being reared to smolt for release in spring 2006.

5. 2006 REPORT ON THE SALMONID ENHANCEMENT PROGRAM IN BRITISH COLUMBIA

This report had not been received by March 31, 2007

Reports of the Joint Technical Committees

PART V
REPORTS OF THE JOINT TECHNICAL COMMITTEES

Executive summaries of reports submitted to the Commission by the joint technical committees during the period April 1, 2006 to March 31, 2007 are presented in this section. Copies of the complete reports are available from the library of the Pacific Salmon Commission.

A. JOINT CHINOOK TECHNICAL COMMITTEE

REPORT OF THE JOINT CHINOOK TECHNICAL COMMITTEE WORKGROUP ON THE OCTOBER 19, 2005 ASSIGNMENT GIVEN TO THE CHINOOK TECHNICAL COMMITTEE BY THE PACIFIC SALMON COMMISSION REGARDING THE CONCUCT OF CANADIAN AABM FISHERIES.

TCCHINOOK (06)-1 – August, 2006

On October 19, 2005 the Pacific Salmon Commission, at the request of the Chinook Interface Group (CIG), asked the Chinook Technical Committee (CTC) to investigate the effects of changes made to the conduct and monitoring of the West Coast Vancouver Island (WCVI) and Northern British Columbia (NBC) troll fisheries in recent years. The request consisted of ten assignments. The results are summarized below.

> ***Assignment 1. At the discretion of the co-chairs, assign a workgroup to have primary responsibility for completion of these tasks;***

A workgroup was formed during a scheduled full CTC meeting October 24-28, 2005 to address the assignments from the CIG (referred to as the Workgroup in this report).

> ***Assignment 2. View the presentation of "Chinook and Coho Salmon Genetic Stock Identification" as catalogued on the PSC website (from June 2004), and other related presentations by DFO staff (e.g., Wilf Luedke to the Southern Panel, February 2005; Rick McNicol to the Northwest Power and Conservation Council, July 2005);***

The members of the Workgroup have completed this assignment. During the course of this review errors were found in the approach used to estimate stock composition for the WCVI troll fishery. The errors were corrected to the extent possible given the available data for the 2004 accounting year, and corrected stock composition estimates for the WCVI fishery are provided. No such problems were found in the approach used in the NBC troll and QCI sport fisheries.

> ***Assignment 3. Review management plans and supporting information and provide a synopsis of management objectives and actions with respect to specific stock concerns for the NBC and WCVI Aggregate Abundance Based Management (AABM) fisheries from 1995 through 2004. Provide an assessment of the degree to which those objectives were achieved and do so in terms of harvests and of exploitation rates on the stocks of concern;***

The Workgroup collated and summarized the management objectives and regulatory measures implemented for the WCVI and NBC AABM fisheries. NBC AABM fishery management objectives for WCVI Chinook were attained for all years with the exception of 2003. For the WCVI AABM fishery, management objectives were achieved for

WCVI Chinook and Thompson Coho in all years. However, impacts on Lower Georgia Strait Chinook were not reduced. Changes in WCVI troll impacts on Fraser Early Chinook could not be assessed.

> ***Assignment 4. For the years 1979-1998, and 1999-2004 provide effort and catch data by month (or other appropriate time period) by management area (or sub-area as appropriate) for the NBC and WCVI AABM fisheries;***

Catch and effort data are summarized by month in Tables 4-1 through 4-8. The Workgroup concluded that the temporal pattern of fishing in the NBC troll fishery has not changed as much as the pattern observed in the WCVI troll fishery. In the WCVI troll fishery, from 1999 through 2004, over 90% of the catch in the WCVI troll fishery was taken from September through May of the following year. From 1985 through 1995, almost 90% of the catch was taken in June through August of the same calendar year. During the 1979-1982 PSC Chinook model base period approximately 60% of the WCVI troll catch occurred during June through August.

The temporal distribution of the catch within calendar years for three different time periods is presented for WCVI troll and NBC troll below.

Table Exec. 1. Temporal distribution of the Chinook catch in the WCVI and NBC troll fisheries.

Fishery	Years	March-May	June-August	September-December*
NBC Troll	1979-1982	12.6%	71.6%	15.8%
	1985-1995	0.4%	89.4%	10.3%
	1999-2004	20.5%	65.2%	14.3%
WCVI Troll	1979-1982	28.2%	57.6%	14.3%
	1985-1995	2.4%	89.0%	8.6%
	1999-2004	58.3%	8.6%	33.1%

* Includes catch from January and February; see Table 4-1 to 4-4 for details.

> ***Assignment 5. To the extent possible, compare stock composition data available from coded wire tag recoveries and from the CTC Chinook model for the years 2000-2004 to the GSI data assembled by Canada to facilitate recent management of the NBC and WCVI fisheries.***

The Workgroup concluded that a useful comparison of stock composition estimates based on Coded Wire Tag (CWT) recoveries, the CTC Model, and Genetic Stock Identification (GSI) data could not be made. The available GSI data and PSC model estimates of stock composition for both AABM fisheries are presented in sections 5 and 8, respectively, of the main body of the report. Due to the general lack of representation of wild stocks, and in many cases, the lack of complete representation of hatchery stocks, in the CWT database, stock composition in these fisheries cannot be estimated using CWT recovery data alone.

> ***Assignment 6. Specify the sampling levels and procedures employed in each fishery and time period for CWT and GSI data for the years 1985-2004;***

CWT—Both the WCVI and NBC troll fisheries have met or exceeded a sampling level of 20% of the annual Chinook landed catch in all but one year from 1985-2004 (Figures 6-1 and 6-2). However, there were sampling periods within a year when less than 20% of the catch was sampled. Sport expansions for both fisheries are based on awareness factors that are derived from creel observations, voluntary head returns, and estimated catches; at times these awareness factors are based on data gathered outside the specific fishery of interest. The Workgroup notes that direct sampling of the heads in Canadian sport fisheries would likely increase the accuracy and precision of CWT recovery data.

GSI—The NBC troll fishery was sampled in a representative manner from 2002-2005 to estimate: 1) the stock composition of Chinook in landed catch when fisheries were open and 2) the stock composition of available Chinook when fisheries were not open (samples obtained by test fishing). The sampling design provides annual estimates of stock composition of landed catch and temporal estimates of stock composition throughout the year. Sample sizes were sufficient to estimate contributions of stocks or stock groups that comprised 5% or more of the annual catch, with reasonable precision (see Tables 5-1A and 5-1B). The NBC AABM sport fishery was sampled in a representative manner from 2003-2005. The overall precision of the estimates is slightly less than that for the troll fishery. Estimates by month are less precise, and likely represent trends for major contributing stocks only.

The WCVI troll fishery GSI sampling was only applied to unclipped fish (2004 and 2005 accounting years). Upon detailed examination of the 2004 year, the Workgroup concluded that this approach, in conjunction with other errors, led to an incorrect estimation of the stock composition of the total catch that year. The Workgroup recommends that if future GSI work in WCVI fisheries is undertaken, that representative GSI sampling be done without regard to clip status. For both fisheries sample sizes taken would not be expected to provide reliable estimates of the contribution of stocks that comprise a small proportion of the catch.

Assignment 7. For those stocks for which analysis is available, update through 2003, with the addition of 2004 when data becomes available, the tables listed in Appendix G of CTC (2004). For all stocks compare average figures for appropriate prior years to average figures for those years (e.g., 1999-2004) for which specific stock concerns influenced the conduct of the NBC and/or WCVI fisheries;

The Workgroup updated the Appendix G tables through 2004.The WCVI AABM fisheries impacts are summarized below:

Table Exec 2. Summary of estimated changes of impacts of the WCVI AABM fisheries (troll and sport) on Chinook exploitation rate indicator stocks from 1979 to 2004.

Stock Complex	**Summary Comments**
Alaskan	Not significantly impacted.
North Central BC (Kitsumkalum)	Not significantly impacted.
WCVI (Robertson Creek)	The proportion of the total run accounted for by the WCVI AABM fisheries in 2002-2004 (2.7%) is less than 40% of the 1979-1982 average of 7%. The proportion of the total run taken by the WCVI troll fishery from 1979-1982 of 6.5% decreased to 0.2% from 2002-2004, about 3% of the base level.
Upper Georgia Strait (Quinsam Fall)	Historic impacts average less than 1%. No impacts observed in recent years.
Lower Georgia Strait (Puntledge, Cowichan, Big Qualicum)	Impacts observed in 2002-2004 were about the same as those in 1979-1982, for Puntledge and Big Qualicum stocks. Impacts on the Cowichan fall stock has tripled in 2002-2004, compared to 1985-1995.
Fraser Early (none)	No information
Fraser Late (Chilliwack)	No base period information is available. Impacts in 2002-2004 average 57% of the rates seen from 1985-1995.
Puget Sound Spring Chinook (Nooksack Fingerling, Nooksack Yearling, Skagit Fingerling, Skagit Yearling, White River Yearling)	Base period data are not available for these stocks and a complete time series in recent years is not available for Nooksack Yearlings and White Yearlings. The average proportion of the total run accounted for by reported catch in 2002-2004 exceeds the levels observed in prior years in 5 of 6 cases for Nooksack Fingerlings, 5 of 5 cases for Skagit Fingerlings, and 11 of 11 cases for Skagit Yearlings.
North Puget Sound Fall (Skagit Summer, Stillaguamish Fingerling, Nisqually Fingerling, Samish Fingerling)	Base period data are not available for this stock group. For most stocks, the proportion of the run taken by the fishery has not changed since the mid 1980s.
South Puget Sound Fall (SPS Fall Fingerlings, SPS Fall Yearling)	This stock group shows little change in the proportion of the run taken in 2002-2004 compared to the base period or other time periods.
Hood Canal (George Adams)	This stock group shows little change in the proportion of the run taken in 2002/03 compared to the base period or other time periods.
Washington Coastal Fall (Hoko, Sooes, Queets)	Historically, the reported catch by this fishery accounted for approximately 10% of the run. Impacts have been substantially reduced since 1999. In this stock complex, base period data are only available for the Queets. The proportion of the Queets run accounted for by the WCVI AABM fishery has been reduced from about 12% in the base period to about 1% in 2002-2004.
Willamette Spring	The reported catch by this fishery accounted for approximately 4% of the run during the base period. Impacts observed in 2002-2004 are about 3%. Impacts from 1985-1998 were about 2%.
Columbia River Summer	The reported catch by this fishery during the base period accounted for about 17% of the run. Impacts observed since 2001 have been substantially higher than levels observed from 1994-2000. In 2002-2004, the 14% of the run accounted for by the WCVI AABM fisheries was about 85% of the 1979-1982 base period levels.
Columbia River Tule (Cowlitz, Spring Creek, Lower River Hatchery)	The reported catch by this fishery accounted for approximately 16%-25% for these three stock groups prior to 1985. Impacts were reduced in response to PST regimes from the mid-1980s to late 1990s. Impacts observed in 2002-2004 were above the levels observed since 1985 and range from 59% to 95% of 1979-1982 base period averages, for these three stocks.
Lewis River Fall	The reported catch by this fishery accounted for about 8% of the run during the base period. Average impacts since then have been similar, about 7% from 1985-1995 and about 8% from 2002-2004. Impacts were estimated at 0% from 1996-2000.
Columbia River Bright	The reported catch by this fishery accounted for about 7% of the run in 1979-1982 but increased to an average of about 9% from 1985-1995. Impacts have been substantially reduced under the PST since the mid 1990s and were estimated to average about 2% in 2002-2004.
Snake River Fall	CWT data for this stock are very limited. Average impacts of 2.8% in 2003-2004 were about one-fifth of those observed from 1988-1994.
Salmon River Fall (Oregon Coast)	The reported catch by this fishery accounted for about 6% of the run during the base period and the average remained relatively unchanged for the period of 1985-1995. Average impacts were reduced to less than 1% since 1995 with no year since exceeding 2%.

The NBC impacts are summarized below:

Table Exec. 3. Summary of estimated changes of impacts of the NBC AABM troll fishery on Chinook exploitation rate indicator stocks from 1979 to 2004.

Stock Complex	**Summary Comments**
Alaskan	No base period data is available. Historic impacts average less than 1%.
North Central BC (Kitsumkalum)	No base period data is available. Impacts averaged about 8% of the run from 1985-1995 and impacts in 2002-2004 averaged about 3%.
WCVI (Robertson Creek)	The proportion of the run accounted for in recent years (1.8%) is less than one-sixth of that observed during the base period (about 11%).
Upper Georgia Strait (Quinsam Fall)	This fishery accounted for over 10% of the impacts to this stock in the base period. Impacts since 1999 have averaged less than 1%.
Lower Georgia Strait (Puntledge, Cowichan, Big Qualicum)	Impacts have decreased since the base period, and remain relatively small (about 2% or less).
Fraser Early (none)	No information
Fraser Late (Chilliwack)	No base period information is available. Impacts have consistently been < 1% since 1985.
Puget Sound Spring Chinook (Nooksack Fingerling, Nooksack Yearling, Skagit Fingerling, Skagit Yearling, White River Yearling)	The proportion of the run accounted for by reported catch in this fishery has remained unchanged under PST management. The impact on these stocks is very small (<1%).
North Puget Sound Fall (Skagit Summer, Stillaguamish Fingerling, Nisqually Fingerling, Samish Fingerling)	The impact of the fishery on these stocks is small, but has increased slightly since 1999 for the Skagit Summers, averaging about 2% of the run from 2002-2004.
South Puget Sound Fall (SPS Fall Fingerlings, SPS Fall Yearling)	Impacts on this stock group have increased in 2002-2004 compared to the base period and the pre 2002 periods, but remain very small (<1%)
Hood Canal (George Adams)	Impacts remain very small (<1%)
Washington Coastal Fall (Hoko, Sooes, Queets)	The reported catch by this fishery accounted for about 18% of the Queets run in the base period and about 12% from 1985-1998, but decreased to about 6% from 1999-2004.
Willamette Spring	The reported catch by this fishery accounted for approximately 10% of the run during the base period. Impacts have been substantially reduced since 1985 under the PST, and averaged < 1% of the run in 2002-2004.
Columbia River Summer	The reported catch by this fishery accounted for 8% of the run during 1979-1982, then about 3% of the run from 1985-1998. Impacts observed for 2002-2004 indicate that the reported catch for this fishery represented about 9% of the run, slightly higher than during the base period and 3 times the 1985-1998 impacts.
olumbia River Tule (Cowlitz, Spring Creek, Lower River Hatchery)	The reported catch by this fishery accounted for a small proportion of the run during 1979-1982. Impacts observed for 2002-2004 indicate that the proportion of the run accounted for by this fishery has not changed significantly under the PST.
Lewis River Fall	This fishery has had a light impact on this stock throughout the time series, averaging about 3% of the run from 1981-1998, and then averaging less than 2% since 1999.
Columbia River Bright	The reported catch by this fishery accounted for approximately 6% of the run in 1979-1982. Impacts observed in 2002-2004 averaged about 3% of the run, about one-half the level observed during the base period.
Snake River Fall	Impacts in 2003-2004 averaged about 1% of the run, and were less than one-quarter (25%) of the average impact observed from 1988-1994.
Salmon River Fall (Oregon Coast)	The reported catch by this fishery accounted for about 21% of the run during the base period, then dropped to average of about 12% from 1985-1995, and subsequently dropped again to an average level of about 5% from 2002-2004.

Assignment 8. Provide annual stock compositions through 2004 for the WCVI and NBC fisheries as in Appendix I of TCCHINOOK (04)-4, again with average figures calculated for appropriate prior years compared with average figures for those years for which specific stock concerns influenced the conduct of the NBC and WCVI fisheries;

The PSC Chinook model estimates of stock composition are provided in Tables 8-1 through 8-10. Since the PSC Chinook model does not include representation for all stocks that may be encountered in a fishery, stock composition estimates generated from the model are not directly comparable to those estimated through other means. In addition, the model, as currently constructed, cannot currently account for temporal changes in the conduct of these fisheries. Therefore, model estimates of stock composition provided do not reflect changes in the temporal conduct of the fisheries.

> ***Assignment 9. For the NBC and WCVI fisheries, provide the CTC's assessment of the GSI data that supports the presentations referenced in 2 above and the stock-specific management plans, and detail how that data may be utilized in advancing our understanding of stock composition in those fisheries;***

The Workgroup concluded: 1) small sample sizes result in considerable uncertainty regarding contributions of stocks that comprise a small portion of the catch, 2) GSI sampling in the WCVI fishery was not representative, and 3) there are questions regarding the potential for bias resulting from an unbalanced representation of stocks included in the baseline.

The utility of GSI estimates could be improved by using standardized genetic baselines and standardized procedures for generating and reporting stock compositions. Genetic methods could provide information for fishery management that cannot be readily obtained from CWT experiments. For example, they could detect the presence of major stocks that are not adequately represented by CWTs. Genetic methods are well suited to estimating the catch of major stocks at reasonable cost. However, these methods are not capable of providing estimates of contributions of stocks that comprise small proportions of the catch with a high degree of reliability unless very large sample sizes are taken.

> ***Assignment 10. After the tasks listed above have been completed, outline, in a separate document if necessary, technical difficulties for implementation of the agreed AABM fishery regimes that may be created by fishery patterns that change (possibly in-season) in order to alter the exploitation rates on specific stocks. Include any recommendations for monitoring programs and for analytical methods to estimate stock-specific impacts (across the range of stocks in an AABM fishery) that may result from such alteration in the conduct of a fishery.***

The Workgroup noticed that the fishery index (harvest rate index) for the WCVI troll fishery derived from the CWT exploitation rate analyses has consistently deviated from the fishery index estimated by the PSC Chinook Model (Figure 1 below) since 2000. Prior to 2000, the two indices track relatively closely. Since then, however, the values have diverged, with the CWT-based index being consistently higher than the Model index. This suggests that the ability of the Model to accurately reflect impacts of the WCVI troll fishery has deteriorated. The Workgroup developed methods to improve the ability of the Model to estimate the impacts of changing catch patterns for this fishery.

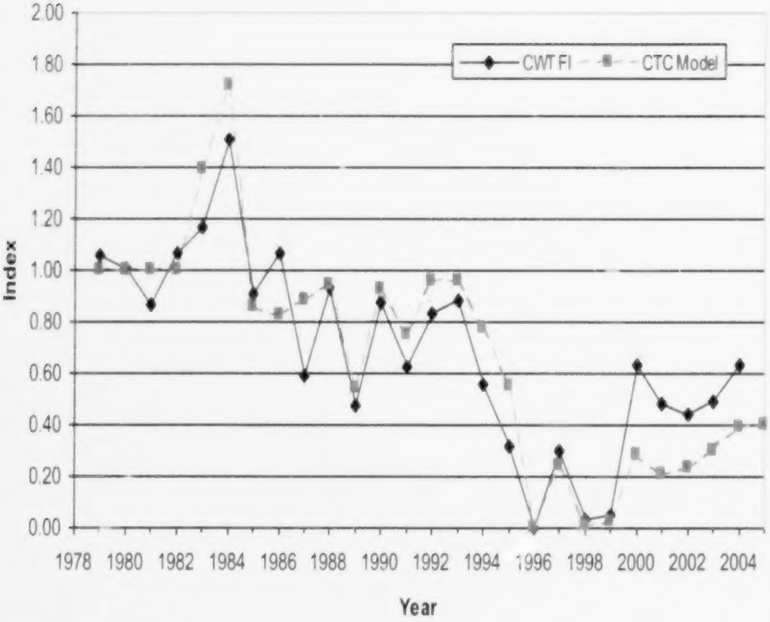

Figure 1. Estimated CWT (through 2004) and PSC Chinook model (through 2005) landed catch fishery indices the WCVI troll fishery, from the 2006 PSC Chinook model calibration.

Two additional analyses were investigated by the Workgroup. The results of these analyses are presented in Section 10 of the report. The first analysis decomposes the annual stock-age specific exploitation rates employed by the PSC Chinook model into monthly stock-age specific exploitation rates. Using this procedure, the stock composition of monthly catches can be estimated. Table 10-1 and Figure 10-1 illustrate how stock composition in the WCVI troll fishery would be expected to change by month. At base period stock abundance levels, Columbia River stocks comprise a larger proportion of the catch earlier in the season (March through June), while Puget Sound stocks comprise a larger proportion of the catch later (September through November). The proportion of Fraser stocks in the catch is predicted to be largest in July and August.

The effect of changes in timing of catch can be represented in the PSC Chinook model by two means: (1) Annual stock-age exploitation rates could be developed by weighting monthly stock-age-fishery exploitation rates by the magnitude of the monthly catch; or (2) annual scalar values could be estimated and used to modify the base period exploitation rates. By combining these adjustments to annual base period exploitation rates with other regulatory measures such as minimum size limits, changes in fishing patterns and regulations could be evaluated. The Workgroup examined the stock composition during three periods with different fishing regimes (1987 to 1995, 1999-2001, and 2002-2004), assuming base period levels of stock abundances.

The methods described above provide a means to modify the PSC Chinook model to reflect the effect of changes in fishery regulations and timing. For fishery planning purposes, the main technical questions relate to the degree to which the fishery timing can be predicted. Unanticipated changes in fishing patterns increase uncertainty in the ability to accomplish stock-specific management objectives. Fishing patterns can change for any number of reasons, either preseason or inseason. Without additional information from managers regarding preseason fishery planning, assumptions regarding fishing patterns must be made. Common assumptions in these cases include the same pattern as observed last year, or a pattern similar to a recent year average. The CTC currently uses these types of assumptions when doing preseason modeling of the SEAK troll fishery. The policy question, simply put, but more difficult to answer is: "How much of a temporal change is too much?" The answer is rooted in policy issues relating to the degree to which deviations from expectations can be tolerated and accommodated by the management system.

The second analysis involved the development of a 'concentration index' to help isolate the effects of fishing pattern changes as reflected in CWT recovery patterns. The concentration index standardizes CWT recoveries by accounting for observed changes in brood year survival, CWT release levels, and fishery catch. By accounting for changes in these factors, any changes in the CWT concentration index can be attributed to one or more of the following confounded factors:

1) Changes in the temporal and spatial conduct of a fishery.

2) Changes in fishery regulations, such as size limits.

3) Changes in stock distribution.

4) Changes in stock survival and abundance relative to other stocks.

The results of this analysis are presented in detail in Section 10.

Workgroup Recommendations

The results of this report have led the Workgroup to five specific recommendations. Some of these recommendations will require policy direction from the PSC. Our recommendations are highlighted in bold font; specific requests for PSC guidance are also highlighted in bold font, and bulleted.

Several analyses conducted by the Workgroup suggest that temporal changes in the conduct of the WCVI troll fishery have led to both positive and negative changes in impact on individual stocks of conservation concern. Currently, the PSC Chinook model cannot account for such temporal changes. In this report, a simple means by which such changes could be accounted for in the model is reported. Such changes would be relatively straight forward to implement and would result in a more accurate prediction of both the Abundance Index and model estimates of stock impacts in a fishery. In the Appendix to Annex IV, Chapter 3, assignment 5 instructs the CTC to '…continue to review and improve the accuracy and precision of the CTC model, including among other things, determining the pre-season forecasts of the aggregate Chinook abundance available to the fisheries.' The proposed model modification would therefore fall under this assignment.

1) **The Workgroup recommends that the CTC implement the model changes described in section 10 of this report for the WCVI, NBC, and WA/OR troll fisheries; other fisheries could also be considered**. However, such changes will likely alter the relationship between abundance and allowable harvest as embodied in Table 1 of the Agreement, as well as the predicted AI for all AABM fisheries. The magnitude of the changes is not known at this time. A similar

modeling procedure called the Stratified Proportional Fishery Index (SPFI) has been in place for the Alaskan (SEAK) troll fishery for a number of years, which accounts for both spatial and temporal changes in its conduct, and therefore no changes in the model would be required for this fishery. However, the changes to the predicted AI for other fisheries resulting from the proposed model changes, will indirectly change the predicted AIs for SEAK fishery as well, though such changes should be small.

- **Does the PSC wish the CTC to modify the PSC Chinook model inputs to be able to account for variations in the temporal distribution of catch during an accounting year in PST Chinook fisheries? If so, for which fisheries and years?**

2) **The Workgroup recommends that after the changes described in section 10 are completed, a SPFI type analysis be developed for at least the WCVI, NBC, and WA/OR troll fisheries.** A SPFI approach would enable the PSC Chinook model to account for both temporal and spatial changes in a fishery. This approach would take longer to develop than the methods described in section 10.

- **Does the PSC wish the CTC to modify the PSC Chinook model inputs to be able to account for temporal and, to the extent possible, spatial changes in PST Chinook fisheries? Such a modification would be similar to the SPFI approach currently used for the SEAK AABM fishery (TCCHINOOK 05-3). If so, for which fisheries and years?**

3) **The Workgroup recommends that preseason management plans for PST fisheries should be as accurate as possible and provided to other jurisdictions in a timely manner, so that they can plan fisheries in their jurisdiction appropriately.** Any changes to such plans should be conveyed to the appropriate parties as soon as possible.

4) **The Workgroup recommends improvements in CWT sampling and release tagging strategies as follows:**

- Direct sampling of all major sport fisheries for CWTs should be implemented if it results in improved estimates for that fishery.
- All hatchery releases should be associated with a CWT release group. Every release of mass marked Chinook should be associated with a CWT group.
- A review of marking and sampling rates for PST Chinook stocks and fisheries is needed. The Workgroup notes that the PSC CWT Workgroup is currently undertaking this task.

5) **The Workgroup recommends that the following points be considered when designing DNA sampling and analysis programs**:

- Sampling sizes need to be appropriate for the level of application, and results should be reported accordingly. Precise estimates of individual stock composition for stocks comprising less than 5% of catch requires considerably higher sample sizes than are generally being applied in most fisheries.
- Using CWTs to estimate stock composition of the adipose-clipped portion of catch is not appropriate due to the high number of adipose-clipped hatchery fish currently being released that are not associated with any CWT release group. Consequently, GSI sampling of catch for stock composition purposes should be representative of both clipped and unclipped fish encountered in that fishery.
- The baseline used for GSI analyses of mixed stock fisheries should be the one most representative of the stocks being intercepted. Specifically, in fisheries where Canadian and U.S. stock composition estimates are equally important, it is recommended that the GAPS baseline be used.
- Presentations of GSI analyses should clearly articulate the objectives of the work, any shortcomings/limitations, the sample sizes employed, the baseline used, and report the results at the appropriate level of stock resolution for the sample sizes used.

ANNUAL REPORT ON CATCH ESCAPEMENT, EXPLOITATION RATE ANALYSIS AND MODEL CALIBRATION OF CHINOOK SALMON UNDER PACIFIC SALMON COMMISSION JURISDICTION, 2006

TCCHINOOK (07)-1 – January 2007

The June 30, 1999, Pacific Salmon Treaty (PST) Annexes and Related Agreements (Agreement) substantially changed the objectives and structure of the Pacific Salmon Commission's (PSC) Chinook salmon fisheries and assessment of Chinook salmon stocks. The Agreement replaced the previous ceiling and pass-through fisheries with Aggregate Abundance Based Management (AABM) and Individual Stock Based Management (ISBM) fisheries. It also assigned the Chinook Technical Committee (CTC) with a number of tasks related to implementation of the Agreement (Appendix to Annex IV, Chapter 3).

In October, 2005, the CTC decided to combine the annual Catch and Escapement and the Calibration and Exploitation Rate Analysis reports into one document due to time constraints resulting from other assignments. In this report, we provide a summary of 2005 fishery catches by region, available estimates of incidental mortality by fishery and limited commentary on fishery catches where needed. Landed catch is reported in the appendices for each geographic area covered under the PST. An assessment of escapement for stocks with CTC accepted goals is included, and escapement data are provided for all escapement indicator stocks. This report also contains the principal results of the annual exploitation rate assessment and the final preseason Chinook model calibration for 2006 (CLB 0604). Results include the Abundance Indices (AIs) for the AABM fisheries and ISBM indices for each party (country).

AABM Abundance Indices and Associated Catches

The pre- and postseason AIs for the three AABM fisheries, Southeast Alaska All Gear (SEAK), Northern British Columbia Troll and Queen Charlotte Islands Sport (NBC), and West Coast Vancouver Island Troll and Outside Sport (WCVI) are presented in Table 1. The Agreement specifies that the AABM fisheries are to be managed through the use of the AIs. Each calibration provides the first postseason AIs for the previous year and the preseason AIs for the current year. Preseason AIs are used to set total allowable catch limits in the upcoming fishing season. Subsequently, postseason AIs (from the following year's calibration) are used to track catch overage and underage provisions. The first 2005 postseason AIs and the 2006 preseason AIs have now been finalized.

Table 1. Abundance Indices for 1999 to 2006 for the SEAK, NBC, and WCVI AABM fisheries.

	SEAK		NBC		WCVI	
Year	**Preseason**	**Postseason**	**Preseason**	**Postseason**	**Preseason**	**Postseason**
1999	1.15	1.12	1.12	0.97	0.60	0.50
2000	1.14	1.10	1.00	0.95	0.54	0.47
2001	1.14	1.29	1.02	1.22	0.66	0.68
2002	1.74	1.82	1.45	1.63	0.95	0.92
2003	1.79	2.17	1.48	1.90	0.85	1.10
2004	1.88	2.06	1.67	1.83	0.90	0.98
2005	2.05	1.90	1.69	1.65	0.88	0.84
2006	1.69		1.53		0.75	

In general, the AIs for 1999 through 2001 are low compared to AIs in the late 1980s and early 1990s but values have increased significantly starting in 2002. The 2006 projected AI values have declined compared to the high values in 2004 and 2005. The Agreement specifies an allowable catch for each AI for each fishery. The maximum allowable Treaty catch (total catch minus any hatchery add-on and exclusion catch) by fishery and year and the actual (observed) catches are shown in Table 2.

Table 2.Observed catches and postseason allowable catches for 1999 to 2005, and preseason allowable catches for 1999 to 2006, for AABM fisheries.

PST Treaty Allowable and Observed Catches									
	SEAK (T, N, S)[1]			NBC (T, S)			WCVI (T, S)		
Year	Pre-season Allowable Catch	Post-season Allowable Catch	Observed Catch	Pre-season Allowable Catch	Post-season Allowable Catch	Observed Catch	Pre-season Allowable Catch	Post-season Allowable Catch	Observed Catch
1999	192,800	184,200	198,842	145,600	126,100	86,726	128,300	107,000	36,413
2000	189,900	178,500	186,493	130,000	123,500	31,900	115,500	86,200	101,438
2001	189,900	250,300	186,919	132,600	158,900	43,500	141,200	145,500	117,670
2002	356,500	371,900	357,133	192,700	237,800	150,137	203,200	196,800	165,036
2003	366,100	439,600	380,152	197,100	277,200	191,657	181,800	268,900	175,821
2004	383,500	418,300	428,773 433,446[2]	243,600	267,000	241,508	192,500	209,600	216,624
2005	416,400	387,400	386,707	246,600	240,700	243,606	188,200	179,700	202,662
2006	346,800			223,200			160,400		

[1] Nomenclature is T for troll, N for net, and S for sport.

[2] The lower value resulted from subtracting a disputed terminal exclusion catch for the Stikine River in 2004. Catch accounting has since been defined in the Transboundary Agreement.

Table 3.Deviations in numbers of Chinook salmon and percentages from catch targets derived from the first postseason AI (Table 3.2) for Pacific Salmon Treaty AABM fisheries in 1999 to 2005.

	SEAK		NBC		WCVI	
Year	Number of Fish	Percent Difference	Number of Fish	Percent Difference	Number of Fish	Percent Difference
1999	+14,642	+7.9%	-39,374	-31.2%	-70,587	-66.0%
2000	+7,993	+4.5%	-91,600	-74.2%	+15,238	+17.7%
2001	-63,381	-25.3%	-115,400	-72.6%	-27,830	-19.1%
2002	-14,767	-4.0%	-87,663	-36.9%	-31,764	-16.1%
2003	-59,448	-13.5%	-85,543	-30.9%	-93,079	-34.6%
2004	+10,473 +15,146	+2.5% +3.6%	-25,492	-9.5%	+7,024	+3.4%
2005	-693	-0.2%	+2,906	+1.2%	+22,962	+12.8%

1 The lower value resulted from subtracting a disputed terminal exclusion catch for the Stikine River in 2004. Catch accounting has since been defined in the Transboundary Agreement.

ISMB Indices

For ISBM fisheries, the Agreement specified that Canada and the United States would reduce base period exploitation rates on specified stocks by 36.5% and 40%, equivalent to ISBM indices of 63.5% and 60% percent, respectively. This requirement is contained in Chapter 3 section 4(d) of the treaty and is referred to as the 'general obligation' and does not apply to stock groups that achieve their CTC agreed escapement goals.

Estimated ISBM fishery indices are shown in Table 4 for Canadian fisheries and Table 5 for United States (U.S.) fisheries. Both tables present CWT-based indices for 2004, and Chinook model-based indices for 2006. The agreement specifies that the ISBM indices be forecasted preseason and evaluated postseason for each escapement indicator stock listed in Attachments I to V of the Chinook Chapter.

CWT-based Indices in 2004

All Canadian ISBM indices from the CWT-based estimates for 2004 show that exploitation rates were reduced more than required for all stocks or stock groups for which the indices could be calculated. Five of the 16 U.S. ISBM indices for the Coded Wire Tag (CWT) based estimates for 2004 were reduced more than required. Of the 11 U.S. CWT-based ISBM indices that exceeded 0.60, eight (Upriver Brights, Quillayute, Queets, Hoh, Mid-Columbia Summers, Nehalem, Siletz, and Siuslaw) have agreed escapement goals and all eight exceeded their goals in 2004.

Predicted ISMB Indices for 2006

Eight of the 20 ISBM indices for Canada in 2006 based on outputs from calibration 0604 are above the allowable value of 0.635 for Canadian ISBM fisheries. None of these stocks have CTC agreed escapement goals. Eleven of the 24 U.S. ISBM indices for 2006 based on calibration 0604 are above the allowable limit of 0.60 for U.S. ISBM fisheries. Ten of the 11 have CTC agreed escapement goals: Queets, Hoh, Quillayute, Upriver Brights, Lewis, Harrison, Mid-Columbia Summers, Nehalem, Siletz, and Siuslaw.

Table 4. Canadian 2004 ISBM indices based on CWT and the 2006 indices predicted from the PSC Chinook Model.

		Canadian ISBM Indices	
Stock Group	**Escapement Indicator Stock**	**CWT Indices for 2004**	**Model Indices for 2006**
Lower Strait of Georgia	Cowichan [2]	0.284 [1,4]	0.590
	Nanaimo	NA[5]	0.590[6]
Fraser Late	Harrison River [2]	0.032[7]	0.294
North Puget Sound Natural Springs	Nooksack	NA	0.993
	Skagit	NA	0.993
Upper Strait of Georgia	Klinaklini, Kakweikan, Wakeman, Kingcome, Nimpkish	0.018	0.584
Fraser Early (spring and summers)	Upper Fraser, Mid Fraser, Thompson	NA	0.610
West Coast Vancouver Island Falls	WCVI (Artlish, Burman, Kauok, Tahsis, Tashish, Marble)	0.488[8]	1.082
Puget Sound Natural Summer / Falls	Skagit	NA	1.092
	Stillaguamish	0.027	1.116
	Snohomish	NA	1.101
	Lake Washington	NA	0.914[9]
	Green River	0.162	0.914[9]
North / Central B. C.	Yakoun, Nass, Skeena, Area 8	NA	0.626
Washington Coastal Fall Naturals [3]	Hoko, Grays Harbor, Queets [2], Hoh [2], Quillayute [2]	NA	0.363
Columbia River Falls [3]	Upriver Brights [2]	NA	0.523
	Deschutes	NA	0.523
	Lewis [2]	NA	0.315
Columbia R Summers [3]	Mid-Columbia Summers [2]	NA	0.335
Far North Migrating OR Coastal Falls [3]	Nehalem [2], Siletz [2], Siuslaw [2]	NA	0.515

[1] Not available (NA) because of insufficient data (lack of stock specific tag codes, base period CWT recoveries, etc).

[2] Stock or stock group with a CTC agreed escapement goal.

[3] Stock group listed in Annex 4, Chapter 3, Attachment V.

[4] An inconsistency was discovered between the approaches used to calculate the model-based and CWT-based indices. The former included harvest rates for terminal sport while the latter did not. Terminal sport harvest rates are now included in the calculation of both indices. Further review is yet required to determine whether the base period terminal sport harvest rates obtained from analyses of Big Qualicum CWT recoveries adequately represent impacts that [illegible] have occurred on Cowichan Chinook.

[5] Several problems have been [illegible] the approach previously used to calculate the CWT-based indices for Nanaimo Chinook. Until these problems are resolved, indices for this stock will not be reported.

[6] Although model-based indices were previously calculated separately for Cowichan and Nanaimo, these did not adequately represent impacts on either LGS stock because the model-based data represent an aggregate of the two stocks and methods do not currently exist to correctly disaggregate these data for calculation of the ISBM values. Until such methods are developed, a single index value will be reported for both stocks.

[7] The terminal sport harvest rates for Chilliwack Hatchery Chinook, the indicator stock, were removed from the calculation for the Harrison River naturals because sport harvest has been essentially zero on the natural population.

[8] An inconsistency was discovered between the approaches used to calculate the model-based and CWT-based indices. The former included harvest rates for terminal sport while the latter did not. Terminal sport harvest rates are now included in the calculation of both indices. A more extended review of the indices for WCVI Chinook will be carried out to determine whether they adequately represent impacts on the WCVI wild aggregate.

[9] For Canadian ISBM fisheries, Lake Washington and Green River the same distribution and Index value are assumed.

Table 5. U.S. 2004 ISBM indices based on CWT and the 2006 indices predicted from the PSC Chinook Model.

		U.S. ISBM Indices	
Stock Group	Escapement Indicator Stock	CWT Indices for 2004	Model Indices for 2006
Washington Coastal Fall Naturals	Hoko	NA [1]	0.442
	Grays Harbor	0.530	0.544
	Queets [4]	0.840	1.022
	Hoh [4]	1.220	1.493
	Quillayute [4]	1.150	0.673
Columbia River Falls	Upriver Brights [4]	1.740	0.814
	Deschutes	0.510	0.437
	Lewis [4]	0.170	1.861
Puget Sound Natural Summer / Falls	Skagit	NA	0.258
	Stillaguamish	0.10	0.493
	Snohomish	NA	0.199
	Lake Washington	NA	0.613
	Green R	1.010	0.361
Fraser Late	Harrison River [4]	0.320	0.787
Columbia R Summers	Mid-Columbia Summers [4]	2.690	0.696
Far North Migrating OR Coastal Falls	Nehalem [4]	1.800	1.912
	Siletz [4]	2.290	1.237
	Siuslaw [4]	1.030	1.095
North Puget Sound Natural Springs	Nooksack	NA	0.121
	Skagit	NA	0.161
Lower Strait of Georgia [3]	Cowichan,	7.250	0.271
	Nanaimo	7.250	0.271
Upper Strait of Georgia [3]	Klinaklini, Kakweikan, Wakeman, Kingcome, Nimpkish	NA	NC [2]
Fraser Early (spring and summers) [3]	Upper Fraser, Mid Fraser, Thompson	NA	0.214
West Coast Vancouver Island Falls [3]	WCVI (Artlish, Burman, Kauok, Tahsis, Tashish, Marble)	NA	0.128
North / Central B. C. [3]	Yakoun, Nass, Skeena, Area 8	NA	NC

1 Not available (NA) because of insufficient data (lack of stock specific tag codes, base period CWT recoveries, etc).

2 NC means that the current model assumes the stock is not caught in U.S. ISBM fisheries.

3 Stock group listed in Annex 4, Chapter 3, Attachment IV.

4 Stock with a CTC agreed escapement goal.

Escapement through 2005

The escapements of 50 naturally spawning escapement indicator stocks/stock aggregates are reviewed annually. Biologically-based escapement goals have been accepted by the CTC for 24 of the 50 escapement indicator stocks/stock aggregates. For 12 of these, the agency escapement goal is defined as a range; for the remaining 12, the escapement goal is the point estimate of SMSY (escapement producing maximum sustained yield). In 2005, for stocks with an escapement goal range, escapements were within the range for eight stocks, above the range for one stock, and below the range for three stocks. For stocks with point estimate goals, escapements were above the goal for all 12 stocks. Data for stocks without accepted goals are presented to illustrate trends in escapement. The CTC will continue to review escapement goals, as they are provided to the committee.

Exploitation Rate Analysis

There have been mark-selective fisheries (MSF) for Chinook salmon in the Strait of Juan de Fuca Washington sport fishery since 2003, in the Columbia River net fisheries since 2002, and in Columbia River spring Chinook sport fisheries since 2000. Double index tag (DIT) groups are used as a monitoring tool to test the hypothesis that there are differences between the marked and unmarked tagged groups due to MSFs and also to estimate mortalities of unmarked fish in MSFs.

A significant change in the ratio of unmarked to marked DIT groups at hatchery escapement can indicate that mark-selective fisheries have differentially impacted DIT pairs. Statistical Z-tests were used to compare the return rate of the marked and unmarked brood-age groups for seven Puget Sound DIT groups subject to MSFs in 2003 and 2004. Of the 52 tests for brood-age differences between marked and unmarked returns to the hatchery, only 6 were significant (Figure 3.15), and the actual calculated differences were small. This indicates that the Area 5 and 6 MSF did not result in significant differences in hatchery escapement of DIT groups. For this reason, the estimates of exploitation rate of marked tagged groups were used in CTC analyses this year.

B. JOINT CHUM TECHNICAL COMMITTEE

2004 POST SEASON SUMMARY REPORT
TCCHUM (06)-1 – April 2006

This Joint Chum Salmon Technical Committee report presents the appropriate information on chum salmon stocks and fisheries in southern British Columbia and Washington for the years 2004 to address the specific provisions and requirements of Chapter 6 of Annex IV of the Pacific Salmon Treaty (PST) (Attachment 1) and the Commission's guidance concerning additional agreements between the parties.

The treaty between the governments of Canada and the United States of America (U.S.) concerning Pacific salmon was designed to facilitate co-operation between the two countries in the management, research and enhancement of Pacific salmon stocks. Chapter 6 of Annex IV of the Pacific Salmon Treaty (PST) required that certain fisheries for chum salmon in southern British Columbia (B.C.) and Washington be managed in a specified manner. Other fisheries, while not specifically mentioned in the PST, are known to harvest chum salmon originating in the other country. This report presents various aspects of the chum found in Washington State and in B.C. waters between Vancouver Island and the mainland and off the west coast of Vancouver Island, and discusses the management actions of Canada and the U.S. in relation to the PST requirements.

In 1999 a new Chum Annex was negotiated and adopted by the parties for a term of 10 years (Attachment 1). Certain provisions of this Annex were updated, relative to earlier versions, to be consistent with the changes in the "Clockwork" management strategy implemented by Canada for fisheries in Johnstone Strait. It also included additional conservation provisions to address concerns of the United States for Hood Canal-Strait of Juan de Fuca summer chum salmon, which have been listed as a "threatened" species under the United States' Endangered Species Act.

In 2002, Canada implemented a significant change in Southern B.C. chum management replacing the "Clockwork" stepped exploitation rates in favor of a fixed fishing schedule designed to approximate a total harvest rate of 20%. The Parties managed their fisheries through 2003 within the spirit of the Annex.

In 2004, the Parties were given additional Commission guidance that modified certain provisions of the Chum Annex (Attachment 2, February 13, 2004). The purpose of the guidance document was to provide Commission direction to the Southern Panel on the conduct of southern chum salmon fisheries for the years 2004 to 2008. This direction was not intended to replace Annex IV, Chapter 6 of the Pacific Salmon Treaty but to address a change in Canadian management, which suspended development of pre-season run size estimates of chum to Canadian waters. The guidance document outlines agreement on modifications to the limits for the U.S. chum salmon fishery in Areas 7 and 7A. This modification disconnects the harvest levels in the U.S. from catch volume in Canada. The U.S. fishery in Areas 7 and 7A was managed pursuant to the Commission guidance to the Southern Panel on the management of southern chum fisheries.

The guidance further provided for a new linkage of the U.S. fishery, in Area 7 and 7A, to the abundance of chum salmon returning to the Fraser River. Additionally, the guidance document provided for conditional exploitation rates for Canadian fisheries based on specific levels of abundance.

C. JOINT COHO TECHNICAL COMMITTEE

No reports were finalized for publication during this reporting period.

D. JOINT NORTHERN BOUNDARY TECHNICAL COMMITTEE

U.S./CANADA NORTHERN BOUNDARY AREA 2006 SALMON FISHERIES MANAGEMENT REPORT AND 2007 PRELIMINARY EXPECTATIONS

TCNB(07)-1 – January, 2007

This report reviews:

1) catch, effort, and management actions in the 2006 Northern Boundary Area troll and net fisheries of southern Southeast Alaska Districts 101 to 108 and northern British Columbia Areas 1, 3, 4, and 5;

2) management performance relative to Treaty requirements for pink salmon;

3) preliminary expectations and fishing plans for 2007.

Historical catch and effort data by district or area, gear, species, and week are no longer reported annually in this report. They can be referenced in *Pacific Salmon Commission, Northern Boundary Technical Committee Report, U.S. / Canada Northern Boundary Area 1999 Salmon Fisheries Management Report and 2000 Preliminary Expectations*. Report TCNB (01)-1, January 2001. If these historical numbers are modified, they will be added as an appendix in a future annual report.

2006 Fisheries

In southern Southeast Alaska the 2006 harvest of pink salmon was 3.3 million – the lowest harvest since 1975, and only 10% of the recent 10-year average of 31.1 million. The 2006 pink salmon harvest for all of Southeast Alaska and Yakutat was 11.7 million, well below the preseason forecast of 52 million pink salmon (the 80% C.I. forecast range was 29-74 million). Formal forecasts are not made for sub-regions, or for species other than pink salmon in Southeast Alaska.

The southern Southeast Alaska pink salmon escapement index of 4.4 million pink salmon just made the escapement goal of 4.0–9.0 million index spawners. Escapement indices for southern Southeast Alaska by District were within management targets for 2 of 5 Districts. Escapement indices were below management targets for 9 of the 17 southern Southeast Alaska pink salmon stock groups.

In the North Coast of British Columbia, aggregate sockeye return to the Skeena River was just over 3 million fish, providing ample commercial sockeye directed fishing opportunities in Area 4. Meanwhile, the Nass aggregate sockeye return was below average return strength. The commercial net sockeye catch of 303,855 sockeye in Area 3 was below the decadal average while the Area 4 marine commercial net sockeye catch of 967,962 is just below the decadal average. An additional 81,798 sockeye were selectively harvested in the Skeena River as part of the First Nations Economic Opportunity Demonstration Fishery and 393,137 were caught through Excess to Salmon Spawning Requirement (ESSR) allocations.

The estimated net Nass River sockeye escapement of 250,642 was above the 200,000 target, although the Meziadin escapement of 146,954 was below both the decadal average (183,000) and the annual escapement target (160,000). An estimated 1,297,863 large sockeye passed through the Babine fence and enhanced Babine stocks achieved target capacity in the Pinkut and Fulton spawning channels. Meanwhile, returns of non-enhanced Babine stocks were variable. Returns to the Nanika/Morice and Kitwanga systems were below desired levels but showed improvement over recent years, with estimated escapements of 12,050 and 5,146, respectively. The Kitwanga escapement represents the largest escapement in decades.

Pink salmon returns to the north coast area were well below preseason expectations, resulting in no pink directed commercial net fishing opportunities. The total commercial net pink catch was 156,435 in Area 3 and 362,641 in Area 4. Pink escapements to the north coast were well below target. Low chum abundance in Areas 3 to 5 resulted in lower than target escapements to most streams. Management actions were in place to minimize chum mortality throughout the Areas 3 to 5 net fishing seasons. The Areas 1 and 101 troll fishery harvested 34,854 pinks, with low catches attributed to weak returns and minimal fishing effort.

E. JOINT TRANSBOUNDARY TECHNICAL COMMITTEE

REVIEW OF ENHANCEMENT ACTIVITIES AT TATSAMENIE LAKE 1990-2005, BY THE ENHANCEMENT SUBCOMMITTEE OF THE JOINT TRANBOUNDARY TECHNICAL COMMITTEE.

TCTR (06)-1. MAY, 2006

On November 21 and 22, 2005 at the Pacific Biological Station in Nanaimo British Columbia, members of the Transboundary Enhancement Subcommittee met with scientists and specialists in sockeye salmon enhancement to undertake a review of the Tatsamenie Lake Enhancement Project. In this paper we summarize the presentations, findings and directions that resulted from this review.

The review was in response to direction from the Transboundary River Panel as presented in a Bilateral Statement. Funding for the review was secured from the Northern Fund in March of 2005. The Enhancement Subcommittee was responsible for the conduct of the review. The objectives were developed in response to the direction of the panel and the technical capabilities and expertise of the committee. We asked members of the committee to present data on areas that we felt were relevant to the review.

The reviewers were selected with a goal of having a range of expertise related to sockeye salmon from both countries. We sought out scientists that were not involved with the Transboundary River projects with the hopes of getting some new perspectives. Members of the TTC were also involved. Table 1 lists the review participants.

Table 1. List of reviewers and their affiliation.

Name	Affiliation
Andy McGregor	ADF&G – Former Panel Chair
Brian Mercer	Canada – Enhancement Committee
Brian Riddle	Canada – DFO Scientist
Don McQueen	Canada – Scientist
Doug Eggers	ADF&G - Scientist
Eric Prestegard	DIPAC Snettisham Hatchery – Enhancement Committee
Flip Pryor	ADF&G – Enhancement Committee
Ian Boyce	Canada – Enhancement Committee
Jeremy Hume	Canada – DFO Scientist
John Burke	SSRAA – Alaska Scientist
John Joyce	NOAA – Technical Committee
Kathleen Jensen	ADF&G - Technical Committee
Kim Hyatt	Canada – Enhancement Committee
Paul Rankin	Canada – Enhancement Committee
Richard Erhardt	Canada - TRTFN – Technical Committee
Ron Josephson	ADF&G – Enhancement Committee
Steve Honnold	ADF&G - Scientist
Steve Reifenstuhl	NSRAA – Enhancement Committee

Objectives

The objectives of the review were:

- Identify factors limiting hatchery & wild sockeye production
- Evaluate biological risks of the Tatsamenie enhancement program
- Identify studies for better understanding mechanisms limiting production
- Develop strategies/plans for mitigating limiting factors

Presentations

All of the reviewers had some knowledge of the Tatsamenie project, but we felt it was important to renew our understanding of the mechanisms that initiated the joint enhancement efforts on the Transboundary Rivers. Andy McGregor, a former Cochairman of both the Transboundary Panel and Transboundary Technical Committee, provided a presentation which gave a brief historical context for the initiation of the project. This was followed by a series of reviews of studies at Tatsamenie Lake by members of the Enhancement Subcommittee.

1. Background of the Enhancement Projects and Panel Direction (McGregor)
2. Limnology, water chemistry and acoustics (Rankin)
3. Egg collection, incubation and release strategies (Prestegard)
4. Fry behavior, growth and survival (Mercer)
5. Predators (Mercer)
6. Smolt estimates and survival (Josephson)
7. Smolt to adult survivals (Boyce)

F. JOINT TECHNICAL COMMITTEE ON DATA SHARING

No reports were finalized for publication during this reporting period.

G. JOINT SELECTIVE FISHERY EVALUATION COMMITTEE

REVIEW OF 2006 MASS MARKING AND MARK SELECTIVE FISHERY PROPOSALS.

SFEC (06)-2. SEPTEMBER 2006

The coast wide CWT system is the only means currently available to obtain data necessary to estimate and monitor coast wide exploitation rates on individual stocks of coho and Chinook salmon, as required for implementation of fishing regimes established by the Pacific Salmon Commission (PSC). The PSC established the Selective Fishery Evaluation Committee (SFEC) to assess impacts of mass marking (MM) and mark-selective fishing (MSF) on the viability of the CWT system. Throughout this report, a marked fish refers to an adipose fin clipped fish and a double index tag (DIT) group includes two CWT groups, one marked (adipose fin clipped) and one unmarked.

This report (a) summarizes the results of the SFEC's review process of 2006 proposals for MM and MSF provided to the PSC between October and December 2005, (b) clarifies the oversight function of the SFEC, and (c) presents recommendations for addressing several unresolved issues and concerns.

Review of Mass Marking Proposals

Marking Programs
Twenty two proposals (10 coho and 12 Chinook) were received for mass marking activities in 2006. The SFEC believes these proposals represent a comprehensive list of all MM programs with international PSC implications.

Approximately 37 million coho are proposed to be mass marked coast wide in 2006. There are no significant changes to marking levels from 2005. Essentially all coho production intended for harvest from Southern BC and Southern US hatcheries is now being mass marked.

Approximately 76.6 million Chinook are proposed to be mass marked from southern US Chinook hatcheries . This is an increase of 14.1 million (22%) from 2005 and 41% greater than the number proposed in 2004. Most of the increase is fall Chinook from the Washington Coast and the Columbia River, a result of implementing the new federal legislation that requires mass marking of all fish from federally funded facilities. This federal mandate is not fully implemented for all stocks. The SFEC is aware that approximately 25 million additional Columbia River fall Chinook are available for potential mass marking by WDFW and ODFW in 2007, pending funding.

Sampling Programs
Assuming recent exploitation rates and sampling programs, the SFEC estimates the proposed mass marking of southern US Chinook stocks in 2006 will result in annual encounters of untagged marked Chinook in sampling program of approximately 8,500 untagged and marked Chinook in Alaska and 17,500 untagged marked Chinook in Canadian sampling programs. Neither agency conducts sampling programs which will recover the unclipped component of Double Index Tagging (DIT) programs required to assess impacts of MSFs. Lack of Electronic Tag Detection (ETD) in AK and some BC fisheries results in inefficient recovery of CWTs (due to extra effort required to process marked and untagged fish). This may result in either lower recovery (sampling) rates or higher costs to maintain current recovery rates.

At current levels of MM of Chinook and coho, only Washington (WA) is adequately sampling and reporting CWT recoveries of unmarked DIT releases. Representatives of WA agencies have completed initial analyses of estimated impacts for coho MSFs, based on marked and unmarked recoveries of DIT releases. Valuable insight was obtained concerning possible levels of bias and uncertainty in estimated impacts. However, the ability to expand the coho analysis and to conduct analyses of Chinook DIT recoveries and MSF impacts, depends on complete sampling and processing of unmarked and tagged fish in harvest and escapement. The lack of sampling for unmarked CWTs in some fisheries (e.g., coho and Chinook fisheries in AK), the lack of processing of heads from unmarked fish with detected CWTs (e.g., most Chinook catches in BC), incomplete reporting of unmarked recoveries to the RMIS database (e.g., from OR fisheries), incomplete or inadequate sampling of escapement where returns of DIT releases are expected will result in biases in any estimation of exploitation rates for unmarked and tagged fish. The SFEC-AWG is considering these issues and the general question of 'Can the DIT program work?' and plans to provide a separate report to the PSC in 2006/2007.

Review of MSF proposals

Six proposals were received for four coho salmon MSFs for 2006. Four proposals were received for BC fisheries; two of these for the Fraser River were new proposals. Two

WDFW proposals were received for ongoing marine recreational coho fisheries. No proposals have been received for the Oregon coho fisheries for the last four fishery years

Seven proposals were received for Chinook salmon MSFs for 2006. WDFW proposals were received for two ongoing marine MSFs and several freshwater MSFs. An ODFW proposal was received for the Willamette spring Chinook and one from IDFG for the Snake River spring and summer Chinook

Issues and Concerns

Lack of proposals.

There is concern about a lack of MSF proposals for some fisheries, including freshwater fisheries in Washington and for marine coho MSFs from ODFW. Although MM proposals were submitted for all activities, these were not all submitted within the required timeframe. The SFEC is aware that significant new Chinook mass marking of fall Chinook from the Columbia River and the coast of Washington is anticipated in 2007 by WDFW.

Post season reports.

The SFEC-AWG requested that agencies send post-season reports for each MSF fishery prosecuted. A template was provided for these reports as well as a new template for the MSFs. No post season reports were provided.

The SFEC-AWG is aware that the request for proposals and reports went out at a late date (early October for a November 1 deadline), and in future the requests for proposals and reports will be sent out in early September.

Utility of the CWT system.

Despite the technical concerns introduced by mass marking and mark selective fisheries, for the near future, the coast wide CWT system remains the only method for the Parties of the Pacific Salmon Treaty to estimate and monitor coast wide exploitation rates on individual stocks of coho and Chinook salmon for the near future (Coded Wire Tag Program Review - Final Report of the Expert Panel, 2005).

The current list of coho and Chinook DIT pairs needs further review by the SFEC-AWG, the CTC and the CoTC as there may be deficiencies in geographic coverage and tagging levels.

The SFEC-AWG has developed methods for using the DIT data to estimate unmarked mortalities (SFEC-AWG, 2002). However, concerns persist about whether the DIT system will yield useable estimates of unmarked exploitation rates in mark-selective fisheries for Chinook salmon. The multiple age distribution and far-ranging nature of Chinook salmon stocks increases the potential for biased estimates of mortalities using DITs. The SFEC is currently evaluating the utility of DIT for Chinook salmon, and what, if any, are the alternatives to DITs. DIT releases for Chinook should be continued to both provide information for this evaluation and to maintain the DIT database.

Tag recovery reporting strata.

Methods to estimate mortalities of unmarked and tagged DIT fish in MSFs differ markedly from the methods used to estimate mortalities in non-selective fisheries. In non-selective fisheries, observed tag recoveries are available from sampling for both marked and unmarked tagged fish, whereas in MSFs only marked tagged recoveries are available. For this reason, tag recoveries and their sample expansions must be reported separately for MSFs and non-selective fisheries.

Mixed bag regulations

Proposals for some coho and Chinook salmon MSFs include mixed bag regulations, where some unmarked fish may be retained along with marked fish in a mark-selective fishery. Under such a regulation it is no longer possible to use any of the methods currently proposed to estimate unmarked encounters of a DIT pair from marked encounters. Methods need to be developed to make estimates in these situations

Coordination of **agency programs**

Mass marking programs, DIT programs, and CWT sampling programs are no longer adequately synchronized between agencies. For example, the southern US plans to increase the mass marking of far north migrating Chinook, expand the number of Chinook MSFs, implement an extensive DIT program (both coho and Chinook), and tag numerous conservation stocks without an adipose mark. At the same time, Alaska has no plans to convert from visual sampling to electronic sampling and Canada does not plan to increase ETD capability or decode CWTs from non adipose-marked fish. These differences in sampling and tagging methodologies will impact analyses by PSC technical committees, eliminate the ability to conduct CWT-only studies, and degrade the ability to assess the impacts of MSFs.

Recommendations and Issues Requiring PSC Direction

Proposal Review Process

- It is recommended that the Commission reissue its call to agencies for proposals for all potential MM and MSFs, and for agencies to provide preliminary and final reports on the conduct of MSFs.
- In order to assist the agencies in achieving this goal, the SFEC will provide agencies a table of indicator stocks and DIT groups with the proposal templates each year.

Interagency Coordination and Cooperation

MM, DIT, and CWT sampling programs are not sufficiently coordinated to support analysis by PSC technical committees. The PSC should continue to support technical and policy processes to develop agreements to clarify responsibilities for maintaining a functional CWT system.

Representation on SFEC

All agencies that are proposing MSFs should be represented on the SFEC. These representatives should be provided with adequate time to assist with completing the SFEC assignments.

MASS MARKING AND MARK SELECTIVE FISHEIRIES FOR 2003 AND 2004.

SFEC (07)-1. JANUARY 2007

This report provides information on mass marking of hatchery salmon, and mark-selective fisheries and sampling programs conducted during 2003 and 2004. The information includes numbers of mass marked (MM) fish released, Double Index Tagging (DIT), electronic tag detection (ETD) capabilities, and implementation of mark-selective fisheries (MSF).

Essentially all coho production intended for harvest from Southern B.C. and Southern U.S. hatcheries is now being mass marked. Participating facilities extend from the Columbia and Snake Rivers to the north end of Vancouver Island. There is no mass marking in California, north/central B.C. or Alaska.

Beginning with 2003 brood, mass marking of chinook increased over previous levels. Most of the increase was for yearling Chinook. These fish were released in 2005 and will be summarized in a subsequent report. There is no Chinook mass marking in California, British Columbia or Alaska.

There were no commercial MSFs in Canadian waters. For recreational fisheries, coho MSFs were implemented in most of southern B.C., including Johnstone Strait, the Strait of Georgia, Juan de Fuca Strait and the West Coast of Vancouver Island. Non-MSF were implemented in terminal areas where local wild stocks are showing improvement.

Numerous coho MSFs occurred in Washington and Oregon in 2003 and 2004. These included commercial troll and recreational fisheries in marine waters. Coastal commercial troll MSFs occurred in Area 1 of Washington, and north of Cape Falcon in Oregon. Recreational coho MSFs occurred in numerous areas in both years. In Washington these occurred in all coastal waters (Areas 1-4) and in various Puget Sound fisheries (Areas 5, 6, 7, and 13). In Oregon these occurred in ocean areas from Leadbetter Point (WA) to Humbug Mountain in 2003, and extended to the Oregon/California border in 2004. Recreational MSFs also occurred in the Columbia River and some Oregon coastal rivers in both years.

The only commercial Chinook MSF in Washington and Oregon was an experimental fishery using tooth net (tangle net) gear. This was jointly implemented by ODFW and WDFW to evaluate the feasibility of a commercial MSF for spring Chinook in the Columbia River. Several recreational Chinook MSFs occurred in both years. In Washington these included an experimental test fishery in Areas 5-6, and the in-stream Skykomish River fishery. In Oregon, coastal in-stream MSFs for spring Chinook occurred in the Tillamook and Nestucca River basins during both years. MSFs for spring and summer run Chinook occurred in the Columbia River from the mouth upstream to the Oregon/Washington border above McNary Dam, and in the Willamette and Snake Rivers.

Publications of the Pacific Salmon Commission

PART VI
PUBLICATIONS OF THE PACIFIC SALMON COMMISSION

Documents listed herein are available to domestic fishery agencies of Canada and the United States, research organizations, libraries, scientists and others interested in the activities of the Commission, through the offices of the Secretariat, 600 - 1155 Robson Street, Vancouver, B.C., V6E 1B5. Photocopying charges may be levied for documents which are out of print.

Reports published by the Pacific Salmon Commission after March 31, 2000 including Commission annual reports, annual reports of the Fraser River Panel, Joint Technical Committee reports and technical reports of the Pacific Salmon Commission are also available in full text format on the Commission's website at www.psc.org.

Documents listed here are those which were published during the period from 2006/07 inclusive. For previous publications, please refer to the Pacific Salmon Commission's website at www.psc.org/publications.

A. ANNUAL REPORTS

No reports were finalized for publication during this reporting period.

B. REPORTS OF JOINT TECHNICAL COMMITTEES

i. Joint Chinook Technical Committee

50. TCCHINOOK(06)-1 *Report of the Joint Chinook Technical Committee Workgroup on the October 19, 2005 Assignment given to the Chinook Technical Committee by the Pacific Salmon Commission regarding the Conduct of Canadian AABM Fisheries*, August 2006.

51. TCCHINOOK(07)-1 *Annual Report on Catch, Escapement, Exploitation Rate Analysis and Model Calibration of Chinook Salmon under Pacific Salmon Commission Jurisdiction, 2006*. January 2007.

ii. Joint Chum Technical Committee

No reports were finalized for publication during this reporting period.

iii. Joint Coho Technical Committee

No reports were finalized for publication during this reporting period.

iv. Joint Data Sharing Technical Committee

No reports were finalized for publication during this reporting period.

v. Joint Northern Boundary Technical Committee

30. TCNB (07)-1 *2004 Post Season Summary Report*. April 2006.

vi. Joint Transboundary Technical Committee

38. TCTR (06)-1 *Review of Enhancement Activities at Tatsamenie Lake 1990 - 2005, by the Enhancement Subcommittee of the Joint Transboundary Technical Committee.* May, 2006.

vii. Selective Fishery Evaluation Committee

9. SFEC (06)-2 *Review of 2006 Mass Marking and Mark Selective Fishery Proposals.* September 2006.

10. SFEC (07)-1 *Mass Marking and Mark Selective Fisheries for 2003 and 2004.* January 2007.

C. REPORTS OF THE FRASER RIVER PANEL

17. *Report of the Fraser River Panel to the Pacific Salmon Commission on the 2003 Fraser River Sockeye Salmon Fishing Season.* PSC Staff. December 2007.

D. TECHNICAL REPORT SERIES OF THE PACIFIC SALMON COMMISSION

20. Andel, J.E. and I.A. Boyce. *Mark-Recapture Studies of Taku River Adult Sockeye Salmon Stocks in 2004.* PSC Tech. Rep. No. 20, February 2007.

21. *Workshop on Hydroacoustics for Salmon Management: March 22-23, 2006.* PSC Tech. Rep. No. 21, March 2007.

E. PUBLICATIONS BY PACIFIC SALMON COMMISSION SECRETARIAT STAFF

No reports were finalized for publication during this reporting period.

F. REPORTS OF THE INTERNATIONAL PACIFIC SALMON COMMISSION

Responsibility for maintenance of the library of the International Pacific Salmon Fisheries Commission, on its termination December 31, 1985, was transferred to the Pacific Salmon Commission. Documents in the Library include historical archival papers which are available to researchers and other interested parties through contact with the Pacific Salmon Commission's Librarian.

Publication of John F. Roos' History of the International Pacific Salmon Fisheries Commission, and P. Gilhousen's Estimation of Fraser River Sockeye Escapements ended all publication series of the International Pacific Salmon Fisheries Commission. Copies of all in-print Progress Reports and Bulletins of the International Pacific Salmon Fisheries Commission are available free of charge through the Library of the Pacific Salmon Commission. Copies of the History of the International Pacific Salmon Fisheries Commission may also be ordered through the Library of the Pacific Salmon Commission.

G. DOCUMENTS SUBMITTED BY THE PARTIES

In compliance with provisions of the Treaty, the Parties provide annual post-season fishery reports and updates on their respective salmonid enhancement programs to the Commission. Documents received during 2006/07 were:

1. *Post Season Report for 2006 Canadian Treaty Limit Fisheries.* Canada Department of Fisheries and Oceans. December 2006.

2. *2005 Report on the Salmonid Enhancement Program in British Columbia.* Canada Department of Fisheries and Oceans. May, 2006.

3. *Preliminary 2006 Post Season Report for United States Salmon Fisheries of Relevance to the Pacific Salmon Treaty.* United States Section, Pacific Salmon Commission. December, 2006

Report of the Auditors for 2006/2007

PART VII

AUDITORS' REPORT AND FINANCIAL STATEMENTS FOR THE PERIOD APRIL 1, 2006 TO MARCH 31, 2007

Financial Statements of

PACIFIC SALMON COMMISSION

Year ended March 31, 2007

KPMG

KPMG LLP
Chartered Accountants
Metrotower II
Suite 2400 - 4720 Kingsway
Burnaby BC V5H 4N2

Telephone (604) 527-3600
Fax (604) 527-3636
Internet www.kpmg.ca

AUDITORS' REPORT TO THE COMMISSIONERS

We have audited the statement of financial position of the Pacific Salmon Commission (the "Commission") as at March 31, 2007 and the statements of financial operations and fund balances and cash flows for the year then ended. These financial statements have been prepared to comply with the Treaty Between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon (the "Treaty"). These financial statements are the responsibility of the Commission's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by the Commission, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Commission as at March 31, 2007 and the results of its operations and its cash flows for the year then ended in accordance with the basis of accounting described in note 2 to the financial statements.

These financial statements, which have not been, and were not intended to be, prepared in accordance with Canadian generally accepted accounting principles, are solely for the information and use of the Contracting Parties for complying with the Treaty. The financial statements are not intended to be and should not be used by anyone other than the specified users or for any other purpose.

KPMG LLP

Chartered Accountants

Burnaby, Canada

May 7, 2007

KPMG LLP, a Canadian limited liability partnership is the Canadian member firm of KPMG International, a Swiss cooperative.

PACIFIC SALMON COMMISSION

Statement of Financial Position
(Expressed in Canadian dollars)

March 31, 2007, with comparative figures for 2006

		Restricted						
	General Fund	Working Capital Fund	Test Fishing Fund	Special Research Fund	Capital Assets Fund	Total	2007 Consolidated	2006 Consolidated (restated - note 3)
Assets								
Current assets:								
Cash	$ 743,491	$ 103,051	$ 482,310	$ 99,944	$ -	$ 685,305	$ 1,428,796	$ 1,848,191
Accounts receivable	291,275	-		-	-	-	291,275	115,343
Interest receivable	5,081	-		-	-	-	5,081	3,389
Prepaid expenses	21,149	-		-	-	-	21,149	23,389
Short-term investments	50,000	-		-	-	-	50,000	50,000
	1,110,996	103,051	482,310	99,944	-	685,305	1,796,301	2,040,312
Capital assets (note 4)					544,383	544,383	544,383	470,547
	$ 1,110,996	$ 103,051	$ 482,310	$ 99,944	$ 544,383	$ 1,229,688	$ 2,340,684	$ 2,510,859
Liabilities and Fund Balances								
Current liabilities:								
Accounts payable and accrued liabilities	$ 156,076	$ -	$ -	$ -	$ -	$ -	$ 156,076	$ 161,099
Accrued benefit obligation (note 6)	372,125	-	-	-	-	-	372,125	315,549
Deferred income (note 7)	283,713	-	-	-	-	-	283,713	873,391
	811,914	-	-	-	-	-	811,914	1,350,039
Net assets:								
Unrestricted	299,082	-	-	-	-	-	299,082	20,121
Internally restricted	-	103,051	482,310	99,944	-	685,305	685,305	670,152
Invested in capital assets	-	-	-	-	544,383	544,383	544,383	470,547
	299,082	103,051	482,310	99,944	544,383	1,229,688	1,528,770	1,160,820
	$ 1,110,996	$ 103,051	$ 482,310	$ 99,944	$ 544,383	$ 1,229,688	$ 2,340,684	$ 2,510,859

See accompanying notes to financial statements.

Approved on behalf of the Commission:

______________________ Chair, Standing Committee on Finance and Administration

______________________ Vice-Chair, Standing Committee on Finance and Administration

PACIFIC SALMON COMMISSION

Statement of Operations and Fund Balances
(Expressed in Canadian dollars)

Year ended March 31, 2007, with comparative figures for 2006

	General Fund	Restricted Working Capital Fund	Test Fishing Fund	Special Research Fund	Capital Assets Fund	Total	2007 Consolidated	2006 Consolidated (restated - note 3)
Revenue:								
Contributions from contracting parties (note 7)	$ 3,493,566	$ -	$ -	$ -	$ -	$ -	$ 3,493,566	$ 3,091,014
Grants	126,054	-	-	-	-	-	126,054	18,031
Interest	77,852	3,066	-	-	-	3,066	80,918	41,194
Other	-	-	-	-	-	-	-	43,226
Gain (loss) on disposal of capital assets		-	-	-	(763)	(763)	(763)	5,567
Test fishing	674,852	-	-	-	-	-	674,852	608,230
	4,372,324	3,066	-	-	(763)	2,303	4,374,627	3,807,262
Expenses:								
Amortization	-	-	-	-	209,891	209,891	209,891	169,800
Salaries and employee benefits	2,369,886	-	-	-	-	-	2,369,886	2,480,170
Travel and transportation	92,913	-	-	-	-	-	92,913	104,711
Rents and communication	119,966	-	-	-	-	-	119,966	104,552
Printing and reproductions	6,821	-	-	-	-	-	6,821	13,141
Contract services	459,951	14	-	-	-	14	459,965	514,183
Materials and supplies	52,808	-	-	-	-	-	52,808	61,963
Foreign exchange	18,603	-	-	-	-	-	18,603	4,630
Test fishing	634,130	-	-	-	-	-	634,130	667,241
Consultations and workshops	17,358	-	-	24,336	-	24,336	41,694	40,757
	3,772,436	14	-	24,336	209,891	234,241	4,006,677	4,161,148
Excess (deficiency) of revenue over expenses	599,888	3,052	-	(24,336)	(210,654)	(231,938)	367,950	(353,886)
Fund balance, beginning of year:								
As previously reported	327,791	104,284	441,588	124,280	470,547	1,140,699	1,468,490	1,712,569
Adjustment of benefit obligation accrual (note 3)	(307,670)	-	-	-	-	-	(307,670)	(197,863)
As restated	20,121	104,284	441,588	124,280	470,547	1,140,699	1,160,820	1,514,706
Interfund transfers	(320,927)	(4,285)	40,722	-	284,490	320,927	-	-
Fund balance, end of year	$ 299,082	$ 103,051	$ 482,310	$ 99,944	$ 544,383	$ 1,229,688	$ 1,528,770	$ 1,160,820

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Changes in Net Assets
(Expressed in Canadian dollars)

Year ended March 31, 2007, with comparative figures for 2006

	Invested in capital assets	Unrestricted	Internally restricted	2007 Total	2006 Total (restated - note 3)
Balance, beginning of year:					
As previously reported	$ 470,547	$ 327,791	$ 670,152	$ 1,468,490	$ 1,712,569
Adjustment of benefit obligation accrual (note 3)	-	(307,670)	-	(307,670)	(197,863)
As restated	470,547	20,121	670,152	1,160,820	1,514,706
Excess (deficiency) of revenue over expenses	(210,654)	599,888	(21,284)	367,950	(353,886)
Transfers between funds	284,490	(320,927)	36,437	-	-
Balance, end of year	$ 544,383	$ 299,082	$ 685,305	$ 1,528,770	$ 1,160,820

See accompanying notes to financial statements.

PACIFIC SALMON COMMISSION

Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2007, with comparative figures for 2006

	2007	2006
		(restated - note 3)
Cash provided by (used in):		
Operations:		
Excess (deficiency) of revenue over expenses	$ 367,950	$ (353,886)
Items not involving cash:		
Amortization	209,891	169,800
Loss (gain) on asset dispositions	763	(5,567)
Net change in non-cash operating working capital	(713,509)	526,206
	(134,905)	336,553
Investing:		
Additions to capital assets	(293,827)	(177,383)
Proceeds on sale of assets	9,337	6,145
Short-term investments	-	(50,000)
	(284,490)	(221,238)
Increase (decrease) in cash	(419,395)	115,315
Cash, beginning of year	1,848,191	1,732,876
Cash, end of year	$ 1,428,796	$ 1,848,191

See accompanying notes to financial statements.

1. Nature of organization:

The Pacific Salmon Commission (the "Commission") was established by the Treaty between the Governments of Canada and the United States of America (the "Contracting Parties") to promote cooperation in the management, research and enhancement of Pacific salmon stocks. The Treaty was ratified on March 18, 1985 and renewed on June 30, 1999, and the Commission commenced operations on September 26, 1985.

2. Significant accounting policies:

(a) Basis of accounting:

These financial statements present the financial position and results of operation of the Commission to comply with the requirements of the Treaty between the Government of Canada and the Government of the United States of America concerning Pacific Salmon, and may not be appropriate for other purposes. As required, the financial statements are prepared on an accrual basis except that purchase order expenses are recognized at the time that the commitment for goods and services are made, rather than at the time that the goods or services are delivered. In all other material respects, these financial statements have been prepared in accordance with Canadian generally accepted accounting principles for not for profit entities.

(b) Fund accounting and revenue recognition:

(i) Revenue recognition:

The Commission follows the restricted fund method of accounting for contributions from Contracting Parties.

Restricted contributions related to general operations are recognized as revenue of the General Fund in the year in which the related expenses are incurred. All other restricted contributions are recognized as revenue of the appropriate restricted fund.

Unrestricted contributions are recognized as revenue of the General Fund in the year received or receivable if the amount to be received can be reasonably established and collection is reasonably assured.

The Fund classifications are as follows:

(ii) The General Fund includes funds provided annually through contributions from the Contracting Parties and any net surplus obtained through the test fishing program. By agreement of the Contracting Parties, any unexpended balance remaining at the end of one fiscal year may be used to offset contributions in the following year or may be used to offset a shortfall between contributions and approved expenses in the following year.

2. **Significant accounting policies (continued):**

(b) Fund accounting and revenue recognition (continued):

(iii) The Working Capital Fund represents monies contributed by the Contracting Parties to be used temporarily pending receipt of new contributions from the Contracting Parties at the beginning of a fiscal year, or for special programs not contained in the regular budget but approved during the fiscal year. Any surplus above a pre-determined fixed limit in the account at the end of the fiscal year is transferred to the General fund and is treated as income.

(iv) The Test Fishing Fund is established as a revolving fund in which a portion of net test fishing revenues realized in years of high abundance are reserved to be used to support test fishing programs in years of low abundance and when conservation concerns are an issue.

(v) The Special Research Fund represents monies set aside to fund additional programs as determined by the Contracting Parties, including Coded Wire Tag Investigation, studies related to Coho salmon and Bilateral Workshop for Genetics Analysis Pacific Salmonids Group.

(vi) The Capital Assets Fund reflects the Commission's capital asset transactions. Amortization is charged to the Capital Fund.

(c) Trust funds:

(i) The Commission administers and holds in trust the Northern Boundary and Transboundary Rivers Restoration and Enhancement Trust Fund and the Southern Boundary Restoration and Enhancement Trust Fund. The assets, liabilities, revenue and expenses of these trust funds are not included in the Commission's financial statements.

(ii) The Commission also administers and holds amounts in trust funds on behalf of the Government of the United States (the "Government") to disburse payroll to certain employees. The assets, liabilities, revenue and expenses of these trust funds are not included in the Commission's financial statements.

(d) Capital assets:

Capital assets are stated at cost less accumulated amortization. Costs of repairs and replacements of a routine nature are charged as a current expense while those expenses which improve or extend the useful life of the assets are capitalized. Amortization is provided using the straight-line method of rates sufficient to amortize the costs over the estimated useful lives of the assets.

2. **Significant accounting policies (continued):**

(d) Capital assets (continued):

Automobiles	5 years
Boats	5 years
Computer equipment and software	3 years
Equipment	5 years
Furniture and fixtures	10 years
Leasehold improvements	10 years

(e) Income taxes:

The Commission is a non-taxable organization under the Foreign Missions and International Organizations Act (1991).

(f) Post-employment benefits:

The Commission provides certain employee future benefits, including a defined benefit pension plan, which is funded by the Commission on an annual basis, and severance, life insurance and medical benefits, which are funded by the Commission as they become due.

The Commission accrues its obligations under employee benefit plans and the related costs as benefits are earned, net of returns on plan assets.

The Commission's policies are as follows:

(i) The cost of retirement benefits earned by employees is actuarially determined using the projected benefit method prorated on service and management's best estimate of expected plan investment performance, salary escalation and retirement ages of employees.

(ii) The expected interest cost on any prior service obligation is calculated using management's estimate for the long-term rate of return.

(iii) The expected return on plan assets is calculated at a market-related value for the assets.

(iv) Any cumulative unrecognized actuarial gains and losses in excess of 10% of the projected benefit obligation will be amortized over the expected average remaining service life of the employee group covered by the program.

(v) As at April 1, 2007, the Commission had an estimated transitional asset of $62,933 (2006 - $70,799), which is being amortized over 15 years, which is the expected average remaining service life of the related employee group.

2. Significant accounting policies (continued):

(g) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate prevailing at the transaction dates. Assets and liabilities denominated in foreign currency at the balance sheet date are translated to equivalent Canadian amounts at the current rate of exchange. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenses.

(h) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Significant areas requiring the use of management estimates relate to the determination of the valuation of accounts receivable, useful lives of capital assets for amortization and accrued liabilities. Actual results could differ from those estimates. Adjustments, if any, will be reflected in operations in the period of settlement.

3. Prior period adjustment:

The Commission has retroactively recorded amortization of the unamortized net actuarial loss which was provided by the actuary in the current year. As a result, the amount reported as net assets at March 31, 2006 and 2005 have decreased by $307,670 and $197,863 over the amounts previously reported. The amount reported as deficiency of revenue over expenses for the year ended March 31, 2006 has increased by $109,807 over the amount previously reported.

4. Capital assets:

	Cost	Accumulated amortization	2007 Net book value	2006 Net book value
Automobiles	$ 219,403	$ 163,497	$ 55,907	$ 83,150
Boats	130,528	114,437	16,091	26,548
Computer equipment	636,143	566,222	69,921	74,478
Computer software	182,513	171,088	11,425	11,639
Equipment	1,128,516	816,408	312,107	190,267
Furniture and fixtures	301,427	258,223	43,204	51,328
Leasehold improvements	85,929	50,201	35,728	33,137
	$ 2,684,459	$ 2,140,076	$ 544,383	$ 470,547

5. General fund balance:

The Commission has approved a carryover of the unexpended funds in the General Fund to be utilized as follows:

	2007	2006 (restated - note 3)
Continuing operations	$ 277,933	$ (3,268)
Reserve for prepaid expenses	21,149	23,389
	$ 299,082	$ 20,121

6. Employee future benefits:

The Commission and its employees contribute to the Pension Plan of the International Fisheries Commissions Pension Society for Employees of Participating Commissions with Headquarters in Canada, a multi-employer defined benefit plan. The plan covers 66 employees, of which 40 are employees of the Commission.

The Commission's liabilities are based on an actuarial valuation using an early measurement date of January 1, 2005.

	Pension Plan	
	2007	2006 (restated - note 3)
Reconciliation of accrued benefit obligation:		
Opening fair value of accrued benefit obligation	$ (8,167,679)	$ (6,490,984)
Current service cost	(214,300)	(133,866)
Benefits paid	200,020	173,786
Interest cost	(401,915)	(382,367)
Actuarial loss	(89,254)	(1,334,248)
Ending fair value of accrued benefit obligation	$ (8,673,128)	$ (8,167,679)

6. Employee benefits (continued):

Reconciliation of plan assets:

	2007	2006
Opening fair value of plan assets	$ 5,135,052	$ 4,602,000
Actual return on plan assets	614,634	483,834
Employer contributions	308,851	132,171
Employee contributions	89,464	90,833
Benefits paid	(200,020)	(173,786)
Ending fair value of plan assets	$ 5,947,981	$ 5,135,052
Net unfunded obligation	$ (2,725,147)	$ (3,032,627)
Unamortized transitional asset	(62,933)	(70,799)
Unamortized net actuarial loss	2,415,955	2,787,877
Accrued benefit liability	$ (372,125)	$ (315,549)

The significant actuarial assumptions adopted in measuring the Commission's accrued pension benefit liability are as follows:

	2007	2006
Discount rate	5%	5%
Expected long-term rate of return on plan assets	7%	7%
Rate of compensation increase	4%	4%

The plan asset portfolio currently comprises equity investments and debt. Equity investments are 65.29% (2006 - 62.66%) of the portfolio and include Canadian and International investments. Debt is 34.71% (2006 - 37.34%) of the portfolio and comprises short-term debt, bonds and mortgages. Asset mix is reviewed periodically and may vary in the future.

The Commission's net benefit plan expense is as follows:

	2007	2006 (restated - note 3)
Current service cost (less employees contributions)	$ 214,300	$ 133,866
Interest cost	401,915	382,367
Expected return on plan assets	(360,374)	(323,326)
Amortization of transitional asset	(7,866)	(7,866)
Amortization of net actuarial loss	117,452	63,516
Net benefit plan expense	$ 365,427	$ 248,557

The net benefit plan expense is included in salaries and employee benefits on the statement of financial operations and fund balances.

7. Contracting parties:

The Commission's only related parties are the Contracting Parties.

During the fiscal year ended March 31, 2007, the Commission received contributions from Contracting Parties totaling $3,493,566 (2006 - $3,091,014). The Commission made no expenses to the Contracting Parties during the year.

The Commission received $283,713 (2006 - $873,391) of contributions from one of the Contracting Parties relating to fiscal year March 31, 2008. This contribution is included in deferred revenue.

8. Financial instruments:

The financial instruments consist of cash, accounts receivable, interest receivable, short-term investments and accounts payable and accrued liabilities. The carrying amounts of these financial instruments are a reasonable estimate of their fair values due to the relatively short term to maturity.

9. Trust funds:

(a) Northern Boundary and Transboundary Rivers Restoration and Enhancement Trust Fund:

The Commission holds contributions in trust for this Fund. The income earned on these contributions is distributed by the Commission as directed by the Northern Enhancement Committee.

(b) Southern Boundary and Transboundary Rivers Restoration and Enhancement Trust Fund:

The Commission holds contributions in trust for this Fund. The income earned on these contributions is distributed by the Commission as directed by the Southern Enhancement Committee.

(c) Trust funds:

The Commission administers and holds trust funds on behalf of the Government of the United States (the "Government") to distribute payroll to certain employees. These amounts have been excluded from the statement of financial position and statement of operations and fund balances of the Commission.

9. Trust funds (continued):

(d) Summary of trust fund balances:

	Northern Boundary	Southern Boundary	Trust Funds	2007 Total	2006 Total
Assets	$ 114,209,771	$ 95,349,481	$ 14,594	$ 209,573,846	$ 205,355,250
Liabilities and Fund balances					
Liabilities	$ 234,727	$ 199,299	$ 14,594	$ 448,620	$ 1,282,830
Fund balances	113,975,044	95,150,182		209,125,226	204,072,420
	$ 114,209,771	$ 95,349,481	$ 14,594	$ 209,573,846	$ 205,355,250

	Northern Boundary	Southern Boundary	Trust Funds	2007 Total	2006 Total
Fund balance, beginning of year	$ 110,430,128	$ 93,642,292	$ -	$ 204,072,420	$ 207,776,924
Revenue	8,399,348	7,029,984	-	15,429,332	6,137,338
Expenses	(4,472,266)	(5,216,258)	-	(9,688,524)	(7,797,473)
Foreign exchange loss	(382,166)	(305,836)	-	(688,002)	(2,044,369)
Fund balance, end of year	$ 113,975,044	$ 95,150,182	$ -	$ 209,125,226	$ 204,072,420

Financial Statements of

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

Year ended March 31, 2007

KPMG LLP
Chartered Accountants
Metrotower II
Suite 2400 - 4720 Kingsway
Burnaby BC V5H 4N2

Telephone (604) 527-3600
Fax (604) 527-3636
Internet www.kpmg.ca

REPORT TO THE TRUSTEES

We have reviewed the statement of financial position of The Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund as at March 31, 2007 and the statements of operations and fund balance and cash flows for the year then ended. Our review was made in accordance with Canadian generally accepted standards for review engagements and, accordingly, consisted primarily of enquiry, analytical procedures and discussion related to information supplied to us by the Trusts.

A review does not constitute an audit and, consequently, we do not express an audit opinion on these financial statements.

Based on our review, nothing has come to our attention that causes us to believe that these financial statements are not, in all material aspects with generally accepted accounting principles.

KPMG LLP

Chartered Accountants

Burnaby, Canada
July 5, 2007

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

Statement of Financial Position
(Expressed in Canadian dollars)

March 31, 2007, with comparative figures for 2006

	2007	2006
Assets		
Current assets:		
Cash and cash equivalents	$ 6,876,000	$ 3,891,493
Interest receivable	17,264	4,717
	6,893,264	3,896,210
Portfolio investments (note 4)	107,316,507	106,685,155
	$ 114,209,771	$ 110,581,365
Liabilities and Fund Balance		
Current liabilities:		
Accounts payable and accrued liabilities	$ 234,727	$ 151,237
Fund balance	113,975,044	110,430,128
	$ 114,209,771	$ 110,581,365

See accompanying notes to financial statements.

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

Statement of Operations and Fund Balance
(Expressed in Canadian dollars)

March 31, 2007, with comparative figures for 2006

	2007	2006
Revenue:		
Interest	$ 97,661	$ 62,741
Realized gain on investments	8,301,687	3,254,535
	8,399,348	3,317,276
Expenses:		
Salaries and benefits	120,846	74,274
Travel and accommodation	35,010	34,570
Rents and communications	677	413
Contract services	707,910	665,685
Project grants	3,604,674	2,838,576
Materials and supplies	3,149	4,122
Foreign exchange loss	382,166	1,095,793
	4,854,432	4,713,433
Excess (deficiency) of revenue over expenses	3,544,916	(1,396,157)
Fund balance, beginning of year	110,430,128	111,826,285
Fund balance, end of year	$ 113,975,044	$ 110,430,128

See accompanying notes to financial statements.

NORTHERN BOUNDARY AND TRANSBOUNDARY RIVER RESTORATION AND ENHANCEMENT TRUST FUND

Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2007, with comparative figures for 2006

	2007	2006
Cash provided by (used in):		
Operations:		
Excess (deficiency) of revenue over expenses	$ 3,544,916	$ (1,396,157)
Change in non-cash operating working capital:		
Interest receivable	(12,547)	(4,680)
Accounts payable and accrued liabilities	83,490	35,016
	3,615,859	(1,365,821)
Investing:		
Decrease (increase) in portfolio investments	(631,352)	980,585
Increase (decrease) in cash and cash equivalents	2,984,507	(385,236)
Cash and cash equivalents, beginning of year	3,891,493	4,276,729
Cash and cash equivalents, end of year	$ 6,876,000	$ 3,891,493

See accompanying notes to financial statements.

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1. **Nature of organization:**

The Northern Boundary and Transboundary River Restoration and Enhancement Trust Fund (the "Trust") was created by the Government of Canada to manage its interest in the Pacific Salmon Commission (the "Commission") to promote cooperation in the management, research and enhancement of Pacific salmon stocks.

2. **Significant accounting policies:**

(a) Basis of accounting:

These financial statements present the financial position and results of operation of the Trust in accordance with Canadian generally accepted accounting principles.

(b) Portfolio investments:

Portfolio investments are recorded at lower of cost and other than temporary decline in market value. Gains and losses are recognized when they are realized.

(c) Income taxes:

The Trust is a non-taxable organization under the Foreign Missions and International Organizations Act (1991).

(d) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate prevailing at the transaction dates. Assets and liabilities denominated in foreign currency at the balance sheet date are translated to equivalent Canadian amounts at the current rate of exchange. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenditures.

2. Significant accounting policies (continued):

(e) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenditures during the reporting period. Adjustments, if any, will be reflected in operations in the period of settlement.

3. Financial instruments:

The financial instruments consist of cash and cash equivalents, interest receivable, portfolio investments and accounts payable and accrued liabilities. Other than portfolio investments, the fair values of which are disclosed in note 4, the carrying amounts of these financial instruments are a reasonable estimate of their fair values due to the relatively short term to maturity.

4. Portfolio investments:

The Trust invests in a series of mutual funds under the supervision of a custodian. The Trust's investments are classified as portfolio investments and consist of the following funds managed:

	2007		2006	
	Cost	Market	Cost	Market
International Equity Fund	$ 19,199,968	$ 24,206,691	$ 21,114,147	$ 24,206,445
US Equity Fund	28,916,872	36,839,491	30,829,641	35,600,241
Global Equity Fund	21,338,559	28,462,649	21,995,156	26,324,387
Canadian Bond	37,861,108	38,715,285	32,746,211	33,440,220
	$107,316,507	$ 128,224,116	$ 106,685,155	$119,571,293

Financial Statements of

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Year ended March 31, 2007

KPMG LLP
Chartered Accountants
Metrotower II
Suite 2400, 4720 Kingsway
Burnaby BC V5H 4N2

Telephone (604) 527-3600
Fax (604) 527-3636
Internet www.kpmg.ca

REPORT TO THE TRUSTEES

We have reviewed the statement of financial position of The Southern Boundary Restoration and Enhancement Trust Fund as at March 31, 2007 and the statements of operations and fund balance and cash flows for the year then ended. Our review was made in accordance with Canadian generally accepted standards for review engagements and, accordingly, consisted primarily of enquiry, analytical procedures and discussion related to information supplied to us by the Trusts.

A review does not constitute an audit and, consequently, we do not express an audit opinion on these financial statements.

Based on our review, nothing has come to our attention that causes us to believe that these financial statements are not, in all material aspects with generally accepted accounting principles.

KPMG LLP

Chartered Accountants

Burnaby, Canada
July 5, 2007

KPMG LLP, a Canadian limited liability partnership is the Canadian member firm of KPMG International, a Swiss cooperative.

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Statement of Financial Position
(Expressed in Canadian dollars)

March 31, 2007, with comparative figures for 2006

	2007	2006
Assets		
Current assets:		
Cash and cash equivalents	$ 5,145,710	$ 3,520,083
Interest receivable	11,813	342
	5,157,523	3,520,425
Portfolio investments (note 4)	90,191,958	91,200,025
	$ 95,349,481	$ 94,720,450
Liabilities and Fund Balance		
Current liabilities:		
Accounts payable and accrued liabilities	$ 199,298	$ 1,078,158
Fund balance	95,150,183	93,642,292
	$ 95,349,481	$ 94,720,450

See accompanying notes to financial statements.

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Statement of Operations and Fund Balance
(Expressed in Canadian dollars)

March 31, 2007, with comparative figures for 2006

	2007	2006
Revenue:		
Interest	$ 47,014	$ 20,729
Realized gain on investments	6,982,970	2,799,333
	7,029,984	2,820,062
Expenses:		
Salaries and benefits	120,846	74,274
Travel and accommodation	40,590	30,897
Rents and communications	2,798	1,054
Contract services	683,394	606,453
Project grants	4,364,981	3,462,570
Materials and supplies	3,648	4,585
Foreign exchange loss	305,836	948,576
	5,522,093	5,128,409
Excess (deficiency) of revenue over expenses	1,507,891	(2,308,347)
Fund balance, beginning of year	93,642,292	95,950,639
Fund balance, end of year	$ 95,150,183	$ 93,642,292

See accompanying notes to financial statements.

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Statement of Cash Flows
(Expressed in Canadian dollars)

Year ended March 31, 2007, with comparative figures for 2006

	2007	2006
Cash provided by (used in):		
Operations:		
Excess (deficiency) of revenue over expenses	$ 1,507,891	$(2,308,347)
Change in non-cash operating working capital:		
Interest receivable	(11,471)	(167)
Accounts payable and accrued liabilities	(878,860)	309,017
	617,560	(1,999,497)
Investing:		
Decrease in portfolio investments	1,008,067	2,098,598
Increase in cash and cash equivalents	1,625,627	99,101
Cash and cash equivalents, beginning of year	3,520,083	3,420,982
Cash and cash equivalents, end of year	$ 5,145,710	$ 3,520,083

See accompanying notes to financial statements.

SOUTHERN BOUNDARY RESTORATION AND ENHANCEMENT TRUST FUND

Notes to Financial Statements
(Expressed in Canadian dollars)

Year ended March 31, 2007

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1. Nature of organization:

The Southern Boundary Restoration and Enhancement Trust Fund (the "Trust") was created by the Government of Canada to manage its interest in the Pacific Salmon Commission (the "Commission") to promote cooperation in the management, research and enhancement of Pacific salmon stocks.

2. Significant accounting policies:

(a) Basis of accounting:

These financial statements present the financial position and results of operation of the Trust in accordance with Canadian generally accepted accounting principles.

(b) Portfolio investments:

Portfolio investments are recorded at lower of cost and other than temporary decline in market value. Gains and losses are recognized when they are realized.

(c) Income taxes:

The Trust is a non-taxable organization under the Foreign Missions and International Organizations Act (1991).

(d) Foreign exchange translation:

Transactions originating in foreign currencies are translated at the exchange rate prevailing at the transaction dates. Assets and liabilities denominated in foreign currency at the balance sheet date are translated to equivalent Canadian amounts at the current rate of exchange. Foreign exchange gains and losses resulting from translation are included in the determination of excess or deficiency of revenue over expenditures.

2. Significant accounting policies (continued):

(e) Use of estimates:

The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenditures during the reporting period. Adjustments, if any, will be reflected in operations in the period of settlement.

3. Financial instruments:

The financial instruments consist of cash and cash equivalents, interest receivable, portfolio investments and accounts payable and accrued liabilities. Other than portfolio investments, the fair values of which are disclosed in note 4, the carrying amounts of these financial instruments are a reasonable estimate of their fair values due to the relatively short term to maturity.

4. Portfolio investments:

The Trust invests funds in a series of mutual funds under the supervision of a custodian. The Trust's investments are classified as portfolio investments and consist of the following funds managed:

	2007		2006	
	Cost	Market	Cost	Market
International Equity Fund	$ 16,136,219	$ 20,267,766	$ 18,049,472	$ 20,566,660
US Equity Fund	24,302,592	30,844,951	26,354,783	30,247,236
Global Equity Fund	17,933,555	23,831,193	18,802,604	22,366,139
Canadian Bond	31,819,592	32,415,515	27,993,166	28,412,005
	$ 90,191,958	$ 107,359,425	$ 91,200,025	$101,592,040

Appendices

Appendix A

Northern Fund Projects for 2006/2007

Enhancement 9

No.	Project Title	Proponent	Organization	Region	Can$	US$
1	Marx Creek Rehabilitation	Tisler	US Forest Ser	AK		$ 93,603
2	Trapper Lake sockeye access improvement	Mercer	DFO	TBR	$ 66,500	$ 56,525
3	Study of potential remote release site for enhanced sx in SEAK	Prestgard	DIPAC	AK		$ 35,900
4	Evaluation of sx production from several hanging lakes in BC	Picard	Gitga'at FN	NBC	$ 104,088	$ 88,475
5	Kitwanga sockeye stock enhancement	Cleveland	Gitanyow	NBC	$ 59,000	$ 50,150
6	ID of enhancement opportunities for wild chum in Area 3	Stephens	Nisga'a	NBC	$ 38,635	$ 32,840
7	Determining trend of chum pop'n dynamics & small hatcheries	Lemon	ORRA	NBC	$ 29,412	$ 25,000
8	Tuya River harvest structure	Etherton	DFO	TBR	$ 185,400	$ 157,590
9	Lakelese Lake. Satellite sockeye hatchery site	Miller	DFO	NBC	$ 47,500	$ 40,375

Enhancement Total US$ $ 580,458

Habitat Restoration 9

No.	Project Title	Proponent	Organization	Region	Can$	US$
1	Mid Skeena watershed restoration effectiveness monitoring	Gottesfeld	GWA	NBC	$ 62,795	$ 53,376
2	Assessment of fish passage at Kispiox forest road crossings	Gottesfeld	GWA	NBC	$ 51,635	$ 43,890
3	Hwy #16 & CN Rail fish passage assessment in Bulkley w'shed	Gottesfeld	SFC	NBC	$ 42,014	$ 35,712
4	Little Klukshu sockeye fry monitoring	Workman	CAFN	TBR	$ 7,153	$ 6,080
5	Kitwanga sockeye spawning habitat improvemt	Cleveland	Gitanyow	NBC	$ 82,353	$ 70,000
6	Cranberry River culvert assessment	Kingston	Gitanyow	NBC	$ 32,500	$ 27,625
7	Instream restoration works in the Lower Nass watershed	Stephens	Nisga'a	NBC	$ 50,000	$ 42,500
8	Taku River satellite imagery	Connor	TRT	TBR		$ 38,371
9	Lakelse Lake. Scully Creek off-channel habitat & flow	Maxwell	LWS	NBC	$ 79,235	$ 67,350

Habitat Restoration Total US$ $ 384,904

Improved Information 33

No.	Project Title	Proponent	Organization	Region	Can$	US$
1	Rivers Inlet echo sounding program (sockeye)	Stevenson	RSSEPS	CC	$ 55,008	$ 46,757
2	Haida Gwaii creel program equipment upgrade & training	Fairweather	Haida TS	QCI	$ 41,240	$ 35,054
3	Sockeye salmon SNP development	Beacham	DFO	BC	$ 88,235	$ 75,000
4	Upgrading PBS molecular genetic lab infrastructure	Beacham	DFO	BC	$ 117,647	$ 100,000
5	Molecular genetics lab infrastructure upgrade	Wilmot	NOAA	AK		$ 52,000
6	Chickamin River chinook CWT & escapement sampling	Pahlke	ADFG	AK		$ 130,000
7A	Taku coho escapement & smolt tagging augmentation	Jones	ADFG	TBR		$ 150,000
7B	Taku coho escapement & smolt tagging augmentation	Boyce	DFO	TBR		$ 46,000
8	Electronic data collection & transfer of salmon escapement	Wilcock	ADFG	AK		$ 62,606
9	Thermal mark imaging station	Agler	ADFG	AK		$ 11,500
10	Estimating chinook stock composition of SEAK fisheries	Templin	ADFG	AK		$ 230,000
11	Northern Boundary area sockeye genetic stock ID	Wilmot	NOAA	AK		$ 70,918
12	Development of a database to support genetic stock ID	Seeb	ADFG	AK		$ 56,750
13	Chilkat chinookCWT project	Ericksen	ADFG	AK		$ 90,000
14	Stikine River coho radio telemetry	Etherton	DFO	TBR	$ 198,970	$ 169,125
15	Stikine River coded wire tagging augmentation	Etherton	DFO	TBR	$ 46,600	$ 39,610
16	Population estimate for Alsek sockeye 2006	Waugh	DFO	TBR	$ 10,200	$ 12,000
17	Mark recapture & radio tagging of Stikine sockeye 2006	Waugh	DFO	TBR	$ 211,764	$ 180,000
18	Stikine/Taku/Alsek chinook/sx/coho baseline DNA w'shop	Johnston	DFO	TBR	$ 24,920	$ 21,182
19	BC northcoast chinook DNA baseline improvement	Winther	DFO	NBC	$ 16,470	$ 14,000
20	Queen Charlotte Is sport chinook DNA stock composition	Winther	DFO	NBC	$ 31,000	$ 26,350
21	Northern BC troll chinook DNA stock composition	Winther	DFO	NBC	$ 55,000	$ 46,750
22	Area 3 & 4 seine fishery encounters & chinook DNA stock ID	Winther	DFO	NBC	$ 32,353	$ 27,500
23	Develop an in-season abundance assessment method for coho	Sawada	DFO	NBC	$ 24,517	$ 20,840
24	Area 3, 4 & 5 salmon net catch monitoring	Wagner	DFO	NBC	$ 49,806	$ 42,335
25	Area 3 - 4 sockeye stock ID program	Peacock	DFO	NBC	$ 50,574	$ 42,988
26	Habitat based chk escapement goal calibration. Clear rivers	Parken	DFO	NBC	$ 62,606	$ 53,215
27	Habitat based chk escapement goal calibration. Dean River	Sturhahn	DFO	NBC	$ 83,000	$ 70,550
28	Lakelse Lake. Tributary Sockeye escapement monitoring	McKenzie	Kitselas FN	NBC	$ 12,100	$ 10,285
29	Gitksan drift net fishery assessment *(WITHDRAWN)*	Hall	GWA	NBC	$ 31,089	$ 26,426
30	Skeena sockeye juvenile rearing lakes assessment	Gottesfeld	SFC	NBC	$ 27,572	$ 23,436
31	Analysis of Alsek sockeye mark-recapture data 2000-04	Link	LGL Alaska	TBR		$ 49,919
32	Kitwanga River sockeye enumeration 2006	Cleveland	Gitanyow	NBC	$ 50,000	$ 42,500
33	Kwinageese weir program. Upper Nass coho mark recapture	Stephens	Nisga'a	NBC	$ 58,823	$ 50,000

Improved Information Total US$ $ 2,125,595

Total Approved Northern Fund Projects for 2006 US$ $ 3,090,957

Appendix B

Southern Fund Projects for 2006/2007

Enhancement - 3

No.	Project Title	Proponent	Organization	Region	Can $	US $
1	Campbell River mainstem chinook enhancement	Gage	Tyee Club	GB	$ 8,818	$ 7,495
2	Upper Adams sockeye-Brood year 2006 fry supplementation	Lofthouse	DFO	FR	$ 98,574	$ 83,788
3	S Fork Nooksack early chinook stock supplementation	Chapman	LIBC	PS		$ 125,146

Enhancement Total US$** **$ 216,429

Habitat Restoration - 22

No.	Project Title	Proponent	Organization	Region	Can $	US $
1	Tenmile Creek conservation easement project	Moll	MRT	OR		$ 50,000
2	Investigation of Lower Thompson juvenile chinook carrying capty	Parken	DFO	FR	$ 24,991	$ 21,242
3	Mahogany Creek culvert replacement project	Christian	Nez Perce	OR		$ 69,200
4	Low flow restoration & fish screening improvements	Carlson	DFO	FR	$ 60,000	$ 51,000
5	Coho groundwater channel project Salmon River watershed	Felhauer	SRWR	FR	$ 66,836	$ 56,811
6	Cowichan River sediment remediation Year 1 of multi-yr project	Craig	BCCF	GB	$ 250,000	$ 212,500
7	Nicola Basin stream flow recovery & development of in-stream	Watts	DFO	FR	$ 80,000	$ 68,000
8	Riparian corridor establishment in the southern BC Interior	Carlson	DFO	FR	$ 60,000	$ 51,000
9	Englishman River side-channel Phase I - intake construction	Grant	CDFC	GB	$ 50,000	$ 42,500
10	Mamquam River - Squamish floodplain & estuary restoration	Tobe	SRWS	GB	$ 85,000	$ 72,250
11	Pierce Ponds off-channel habitat project	Englund	FVRWC	GB	$ 80,000	$ 68,000
12	Horsefly River riparian restoration project	Booth	TLC	FR	$ 30,000	$ 25,500
13	Maria Slough chinook habitat project	Jones	SIIB	GB	$ 46,000	$ 39,100
14	Coho habitat water budget assessment Salmon River	Felhauer	SRWR	FR	$ 41,213	$ 35,031
15	Fish passage improvements in the BC Interior	Carlson	DFO	FR	$ 100,000	$ 85,000
16	Vaughn Creek reach 1 fish passage improvement	Lofman	TBWC	OR		$ 58,481
17	Coldwater River habitat restoration	Coutlee	NTA	FR	$ 64,959	$ 55,215
18	Bonaparte River coho production strategy	Ridgeway	BWSS	FR	$ 59,940	$ 50,949
19	Nisqually Estuary restoration & monitoring Phase II	Dorner	NIT	PS		$ 113,000
20	Cowichan cold water pump facility	Tutty	CSRT	GB	$ 15,000	$ 12,750
21	Improving salmon habitat productivity models for setting	Thompson	WDFW	WA		$ 24,466
22	Coquille River watershed habitat enhancement project	Hampel	CWA	OR		$ 86,000

Habitat Restoration Total US$** **$ 1,347,997

Improved Information - 30

No.	Project Title	Proponent	Organization	Region	Can $	US $
1	Fraser River sockeye stock assessment framework	Cass et al	DFO	FR		$ 100,000
2	San Juan River downstream trap setup	Hop Wo	SJES	WCVI	$ 5,500	$ 4,675
3	Extension of the chinook microsatellite baseline	Stephenson	CRITFC	OR		$ 54,706
4	Improvements to environmental management adjustment models	Macdonald	DFO	FR	$ 90,000	$ 76,500
5	Genetic introgression study of Gold River chinook & Robertson	Dobson	DFO	WCVI	$ 15,000	$ 12,750
6	Cowichan harvest strategy round table	Hop Wo	DFO	GB	$ 18,000	$ 15,300
7	Bush Creek permanent smolt trap	Hop Wo	DFO	GB	$ 13,500	$ 11,475
8	Thermal marking of Cowichan fall chinook	Tompkins	DFO	GB	$ 60,700	$ 51,595
9	Genetic baseline additions of Washington chinook to enhance mix	Young	WDFW	WA		$ 100,039
10	Nanaimo River chinook indicator stream surrogate	Banks	NRES	GB	$ 40,000	$ 34,000
11	Genetic variation within Deschutes River fall chinook	Brun	CTWSRO	OR		$ 40,350
12	Investigation to determine the cause of early migration behaviour	Hinch et al	UBC	FR	$ 1,020,000	$ 867,000
13	In river migration behaviour & survival from Mission to spawning	English	LGL	FR	$ 198,258	$ 168,519
14	Assessment of Thompson River coho in North puget Sound	Kirby	NIFC	PS		$ 27,400
15	Development of allele ladders for 13 microsatellite loci	La Hood	NOAA	WA		$ 42,000
16	Developing efficient multi-species survey enhancements to index	Krueger	WDFW	WA		$ 25,520
17	Burman River chinook escapement goal calibration	Dunlop	NTC	WCVI	$ 15,000	$ 12,750
18	Skagit River chum escapement study	Musslewhite	SRSC	PS		$ 48,000
19	Split Beam on the North Bank of the Fraser near Mission	Cave	PSC	FR	$ 154,813	$ 131,591
20	Habitat-based chinook escapement goal calibration large rivers	Chamberlain	DFO	FR	$ 122,500	$ 104,125
21	DNA stock composition of catch and released WCVI troll chinook	Hop Wo	DFO	WCVI	$ 103,000	$ 87,550
22	Analysis of chinook thermal marking	Dobson	DFO	WCVI	$ 47,080	$ 40,018
23	Evaluation of the Blueview imaging sonar tool	Cronkite	DFO	FR	$ 44,970	$ 38,225
24	Development of a database to support genetic stock ID studies	Beacham et al	DFO	BC		$ 56,750
25	Determining Canadian MU-specific reference points	Tompkins	DFO	BC	$ 48,780	$ 41,463
26	Accuracy evaluation on electronic CWT detection equipment	Houtman	DFO	WCVI	$ 48,700	$ 41,395
27	Genetic stock ID of chinook mixtures at Bonneville Dam	Hatch	CRITFC	OR		$ 45,016
28	Lower Granite fall chinook run reconstruction assistance	Milks	WDFW	WA		$ 43,878
29	Use of PIT tags to determine upsteam migratory timing/survival	Fryer	CRITFC	OR		$ 20,234
30	Habitat-based chinook escapement goal calibration small WCVI	Parken	DFO	WCVI	$ 70,480	$ 59,908

Improved Information Total US$** **$ 2,402,732

Total Approved Southern Fund projects for 2006 US$** **$ 3,967,158

Appendix C

Appointment of Officers for 2006/2007

Effective December 1, 2006 a new slate of officers for the Pacific Salmon Commission was identified as follows:

OFFICE	COUNTRY	REPRESENTATIVE
Commission Chair	Can	Paul Sprout
Commission Vice-Chair	U.S.	Ron Allen
Fraser River Panel Chair	Can	Paul Ryall
Fraser River Panel Vice-Chair	U.S.	Lorraine Loomis
Northern Panel Chair	Can	David Einarson
Northern Panel Vice-Chair	U.S.	Gordon Williams
Southern Panel Chair	Can	Gord McEachen
Southern Panel Vice-Chair	U.S.	Pat Pattillo
Transboundary Panel Chair	Can	Sandy Johnston
Transboundary Panel Vice-Chair	U.S.	John H Clark
Stan. Comm. on F&A - Chair	Can	Paul Macgillivray
Stan. Comm. on F&A - Vice-Chair	U.S.	Rollie Rousseau
Stan. Comm. on Scientific Cooperation - Chair	U.S.	Steve Pennoyer
Stan. Comm. on Scientific Cooperation - Vice-Chair	Can	Laura Richards
Technical Committee on Data Sharing - Co-Chair	Can	Chuck Parken
Technical Committee on Data Sharing - Co-Chair	U.S.	Norma Jean Sands
Fraser River Panel Technical Committee - Co-Chair	Can	Les Jantz
Fraser River Panel Technical Committee - Co-Chair	U.S.	Gary Graves
Northern Boundary Technical Committee - Co-Chair	Can	David Peacock
Northern Boundary Technical Committee - Co-Chair	U.S.	Glen Oliver
Transboundary Technical Committee - Co-Chair	Can	Sandy Johnston
Transboundary Technical Committee - Co-Chair	U.S.	Scott Kelly
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	Can	Pat Milligan
Enhancement Subcommittee of the Transboundary Technical Committee - Co-Chair	U.S.	Ron Josephson
Joint Technical Committee on Chinook - Co-Chair	Can	Rick McNicol
Joint Technical Committee on Chinook - Co-Chair	U.S.	Dell Simmons
Joint Technical Committee on Coho - Co-Chair	Can	Wilf Luedke
Joint Technical Committee on Coho - Co-Chair	U.S.	Gary Morishima
Joint Technical Committee on Chum - Co-Chair	Can	Leroy Hop Wo
Joint Technical Committee on Chum - Co-Chair	U.S.	Nick Lampsakis
Selective Fishery Evaluation Committee - Co-Chair	Can	Brent Hargreaves
Selective Fishery Evaluation Committee - Co-Chair	U.S.	Gary Morishima

Appendix D

Approved Budget FY 2007/2008

1. INCOME

A.	Contribution from Canada	$1,587,969
B.	Contribution from U.S.	$1,587,969
	Sub total	$3,175,937
C.	Carry-over from 2004/2005	$ 402,297
D.	Interest	$ 22,000
E.	Other income	$ 0
F.	Total Income	$3,600,234

2. EXPENDITURES

A.	1. Permanent Salaries and Benefits	$2,251,172
	2. Temporary Salaries and Benefits	$ 311,216
	3. Total Salaries and Benefits	$2,562,388
B.	Travel	$ 151,418
C.	Rents, Communications, Utilities	$ 148,971
D.	Printing and Publications	$ 18,500
E.	Contractual Services	$ 530,473
F.	Supplies and Materials	$ 60,615
G.	Equipment	$ 127,870
H.	Total Expenditures	$3,600,234

3. BALANCE (DEFICIT) $ 0

Appendix E

Pacific Salmon Commission Secretariat Staff as of March 31, 2007

EXECUTIVE OFFICE

Don Kowal
Executive Secretary

Teri Tarita
Records Administrator/Librarian

Kimberly Bartlett
Secretary

Vicki Ryall
Meeting Planner

Kathy Mulholland
Information Technology Manager

Sandie Gibson
Information Technology Support Specialist

FINANCE & ADMINISTRATION

Kenneth N. Medlock
Controller

Angus Mackay
Fund Coordinator

Bonnie Dalziel
Accountant

Victor Keong
Program Assistant Restoration &
Enhancement Funds

FISHERY MANAGEMENT

Mike Lapointe
Chief Biologist

Jim Gable
Head, Stock Identification Group

Steve Latham
Stock Idendtification Biologist, Sockeye

Bruce White
Stock Identification Biologist, Pinks

Keith Forrest
Test Fishing Biologist

Maxine Reichardt
Senior Scale Analyst

Julie Sellars
Assistant Scale Analyst

Holly Anozie
Scale Lab Assistant

Jim Cave
Head, Stock Monitoring Group

Ian Guthrie
Head, Biometrics

Yunbo Xie
Hydroacoustics Scientist

Andrew Gray
Hydroacoustics Biologist

Fiona Martens
Hydroacoustic Technician

Jacqueline Boffey
Hydroacoustic Technician (term)

Appendix F

Membership Lists for Standing Committees, Panels, Joint Technical Committees and other Appointments as of March 31, 2007

1. STANDING COMMITTEE ON FINANCE AND ADMINISTRATION

Mr. Paul Macgillivray (Chair)
Mr. Corey Jackson
Mr. Ron Faust

Mr. Rollie Rousseau (Vice-Chair)
Mr. W. Ron Allen
Mr. David Bedford
Mr. Dave Cantillon
Ms. Karen Emmerson
Mr. Mike Matylewich

Staff

Mr. Don Kowal (ex. Officio)

Editorial Board

Mr. Tim Young

Mr. Dave Cantillon (acting)

Staff

Mr. Don Kowal (ex. Officio)

2. FRASER PANEL

Mr. Paul Ryall (Chair)
Mr. Murray Chatwin
Mr. Mike Griswold
Mr. Terry Lubzinski
Chief Ken Malloway
Mr. Larry Wick

Ms. Lorraine Loomis (Vice-Chair)
Mr. Dave Cantillon
Mr. Robert F. Kehoe
Mr. John Long

FRASER RIVER PANEL - ALTERNATES

Mr. Brian Assu
Mr. Tom Bird
Mr. Randy Brahniuk
Mr. Les Rombough
Mr. Peter Sakich
Mr. Marcel Shepert

Mr. Ronald G. Charles
Mr. Jack R. Giard
Ms. Teresa Scott
Mr. Tim Tynan

3. SOUTHERN PANEL

Mr. Gord McEachen (Chair)
Dr. Don Hall
Mr. John Legate
Mr. Jeremy Maynard
Mr. Paul Rickard

Mr. Patrick Pattillo (Vice-Chair)
Mr. Burnie Bohn
Mr. Larry Carpenter
Mr. Peter Dygert
Mr. James E. Harp
Mr. Terry Williams

SOUTHERN PANEL - ALTERNATES

Ms. Marilyn Murphy
Mr. Bill Pirie
Mr. Barry Rosenberger
Mr. Errol Sam
Mr. Stan Watterson

Mr. Curt Melcher
Mr. Randy A. Settler
Mr. Andy Whitener
Mr. Keith Wilkinson
Mr. Robert Wunderlich

4. NORTHERN PANEL

Mr. Dave Einarson (Chair)
Mr. Chris Barnes
Mr. Bill de Greef
Mr. John McCulloch
Mr. John Murray
Mr. Greg Taylor

Mr. Gordon Williams (Vice-Chair)
Mr. William F. Auger
Mr. Peter Hagen
Mr. Howard Pendell
Mr. Russell Thomas
Mr. Robert M. Throtenson

NORTHERN PANEL - ALTERNATES

Mr. John Brockley
Mr. Rick Haugan
Ms. Deborah Jeffrey
Ms. Pat Moss
Chief Harry Nyce Sr.
Mr. Bruce Shepherd

Mr. John Carle
Mr. Mitchell Eide
Mr. Arnold Enge
Dr. Jack Helie
Mr. Dennis Longstreth
Mr. Charles Swanton

5. TRANSBOUNDARY PANEL

Mr. Sandy Johnston (Chair)
Mr. Ronald Chambers
Ms. Cheri Frocklage
Mr. Stephan Jacobs
Mr. Ray Kendel
Ms. Lorelei Smith
Mr. John Ward

Dr. John H. Clark (Vice-Chair)
Mr. James Becker
Mr. Rod Brown
Mr. Richard Davis
Mr. Arnold Enge
Mr. Peter Hagen

6. STANDING COMMITTEE ON SCIENTIFIC COOPERATION

Dr. Laura Richards (Vice-Chair)
Dr. Dick Beamish

Mr. Steve Pennoyer (Chair)
Dr. David Hankin

7. NORTHERN FUND COMMITTEE

Mr. Dave Einarson (Co-Chair)
Mr. Ron Fowler
Mr. Lorelei Smith

Mr. Doug Mecum (Co-Chair)
Mr. James E. Bacon
Mr. David Bedford

8. SOUTHERN FUND COMMITTEE

Mr. Wilf Luedke (Co-Chair)
Dr. Don Hall
Mr. Mike Griswold

Mr. Rollie Rousseau (Co-Chair)
Mr. Olney Patt Jr.
Mr. Larry Rutter

9. JOINT TECHNICAL COMMITTEE ON CHINOOK

Dr. Rick McNicol (Co-Chair)
Dr. Gayle Brown
Mr. Roger Dunlop
Mr. Wilf Luedke
Ms. Karen Mathias
Mr. Chuck Parken
Ms. Teresa Ryan
Mr. Julian Sturhahn
Dr. Arlene Tompkins
Mr. Ivan Winther

Mr. Dell Simmons (Co-Chair)
Mr. David Bernard
Mr. Ryan Briscoe
Mr. John Carlile
Dr. John H. Clark
Mr. Ethan Clemons
Mr. Gary R. Freitag
Mr. Edgar Jones
Dr. Robert Kope
Mr. Brian Lynch
Ms. Marianne McClure
Mr. Scott McPherson
Dr. Gary S. Morishima
Mr. James F. Packer
Ms. Lisa Seeb
Mr. Rishi Sharma
Dr. Brad Thompson
Mr. Alex C. Wertheimer
Mr. Henry J. Yuen

10. JOINT TECHNICAL COMMITTEE ON COHO

Mr. Wilf Luedke (Co-Chair)
Mr. Richard Bailey
Ms. Diana Dobson
Dr. Blair Holtby
Ms. Karin Mathias
Mr. Chuck Parken
Mr. Kent Simpson
Ms. Melanie Sullivan
Mr. Joe Tadey
Dr. Arlene Tompkins
Mr. Pieter Van Will
Mr. Ken Wilson

Dr. Gary S. Morishima (Co-Chair)
Ms. Carrie Cook-Tabor
Mr. Robert A. Hayman
Mr. Jeff Haymes
Dr. Peter W. Lawson
Mr. Curt Melcher
Mr. Bill Patton
Mr. James B. Scott
Ms. Laurie Weitkamp

(**Northern Coho**)

Dr. John H. Clark
Ms. Michele Masuda
Mr. Leon D. Shaul

11. JOINT TECHNICAL COMMITTEE ON CHUM

Mr. Leroy Hop Wo (Co-Chair)
Mr. Wilf Luedke
Mr. Clyde Murray
Ms. Melanie Sullivan
Mr. Pieter Van Will

Mr. Nick Lampsakis (Co-Chair)
Mr. Kyle Adicks
Ms. Rebecca Bernard
Ms. Amy Seiders
Dr. Gary Winans

12. TECHNICAL COMMITTEE ON DATA SHARING

Mr. Chuck Parken (Co-Chair)
Ms. Lia Bijsterveld
Ms. Sue Lehmann

Dr. Norma Jean Sands (Co-Chair)
Mr. Ron Josephson
Mr. Mike Matylewich
Dr. Gary S. Morishima
Mr. George Nander
Mr. Dick O'Connor
Mrs. Amy Seiders

Working Group on Data Standards

Ms. Kathryn Fraser (Co-Chair)
Ms. Brenda Ridgway

Mr. George Nander (Co-Chair)
Mr. P. Brodie Cox
Mr. William Johnson
Mr. John Leppink
Mr. Ken Phillipson

13. FRASER RIVER PANEL TECHNICAL COMMITTEE

Mr. Les Jantz (Co-Chair)
Mr. Alan Cass
Mr. Ron Goruk
Mr. Jeff Grout
Mr. Mike Staley

Mr. Gary Graves (Co-Chair)
Mr. Kyle Adicks
Ms. Sarah McAvinchey

14. NORTHERN BOUNDARY TECHNICAL COMMITTEE

Mr. David Peacock (Co-Chair)
Mr. Dana Atagi
Mr. Steve Cox-Rogers
Mr. Allen Gottesfeld
Mr. Mark Potyrala

Mr. Glen Oliver (Co-Chair)
Mr. Justin Breese
Mr. Phillip S. Doherty
Mr. William Heard
Mr. Steve Heinl
Ms. Michelle Masuda
Mr. James Seeb
Mr. John Wilcock
Mr. Xinxian Zhang

15. SELECTIVE FISHERY EVALUATION COMMITTEE

Dr. Brent Hargreaves (Co-Chair)
Ms. Sue Lehmann

Dr. Gary S. Morishima (Co-Chair)
Dr. Marianna Alexandersdottir
Ms. Carrie Cook-Tabor
Mr. Harold Geiger
Dr. Annette Hoffmann
Mr. Ken Johnson
Mr. Ron Josephson
Mr. Mark Kimbel
Ms. Christine Mallette
Mr. Doug Milward
Mr. George Nander
Mr. Ron Olson
Mr. Patrick Pattillo
Dr. Norma Jean Sands
Mr. Rishi Sharma
Mr. Dell Simmons

16. TRANSBOUNDARY TECHNICAL COMMITTEE

Mr. Sandy Johnston (Co-Chair)
Mr. Ian Boyce
Mr. Pete Etherton
Mr. Rick Ferguson
Mr. Bill Waugh

Mr. Scott Kelley (Co-Chair)
Mr. Jim Andel
Mr. William R. Bergmann
Mr. Scott Forbes
Ms. Kathleen A. Jensen
Mr. Edgar Jones
Mr. John Joyce
Mr. Kevin Monagle
Mr. Keith Pahlke
Mr. Gordon Woods

ENHANCEMENT SUB-COMMITTEE

Mr. Pat Milligan (Co-Chair)
Dr. Kim Hyatt
Mr. Paul Rankin

Mr. Ron Josephson (Co-Chair)
Mr. Eric Prestegard
Mr. Garold Pryor
Mr. Steve Reifenstuhl

17. JOINT CHINOOK INTERFACE GROUP

Mr. Gerry Kristianson (Chair)
Mr. Ron Fowler
Mr. Russ Jones

Mr. Larry Cassidy (Vice-Chair)
Mr. Olney Patt Jr.

18. NATIONAL CORRESPONDENTS

Mr. Corey Jackson

Mr. Dave Cantillon (acting)